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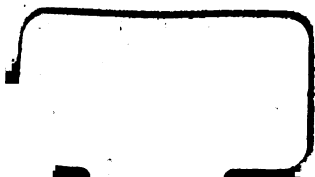
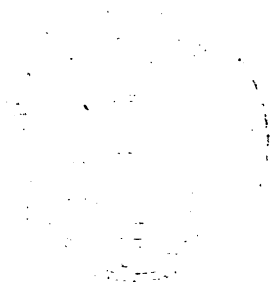
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CATALOGUE

OF THE

University of Vermont

AND

STATE AGRICULTURAL COLLEGE



BURLINGTON, VERMONT

1902-1903

BURLINGTON, VT.
FREE PRESS ASSOCIATION
1902

CALENDAR

1902 DEPARTMENTS OF ARTS AND SCIENCES

- | | |
|--------------------------|--|
| 24 Sept. Wednesday A. M. | First half-year began |
| Thanksgiving Recess | From Wednesday noon, Nov. 26,
to Friday noon, Nov. 28 |
| Christmas Recess | From Tuesday evening, Dec. 23,
to Monday noon, Jan. 5 |

1903

- | | |
|-----------------------------|--|
| 26 Jan. Monday | Mid-year Examinations begin |
| 8 Feb. Sunday | Day of Prayer for Colleges |
| 9 Feb. Monday | Second half-year begins |
| 22 Feb. Sunday | Washington's birthday |
| Spring Recess | From Friday evening, March 27,
to Tuesday noon, April 7 |
| 1 May Friday | Founder's Day |
| 1 May Friday 8 P. M. | Prize Reading for Women Students |
| 30 May Saturday | Memorial Day |
| 8 June Monday | Final Examinations begin |
| 21 June Sunday 3 P. M. | Baccalaureate Discourse |
| 21 June Sunday 3 P. M. | Anniversary of Y. M. C. A. |
| 22 June Monday | Class Day |
| 23 June Tuesday 9 A. M. | Meeting of Phi Beta Kappa Society |
| 23 June Tuesday 10 A. M. | Meeting of Associate Alumni |
| 23 June Tuesday 12.30 P. M. | Alumni Breakfast |
| 23 June Tuesday 1.30 P. M. | Meeting of Athletic Association |
| 23 June Tuesday 3 P. M. | Oration before Phi Beta Kappa |
| 23 June Tuesday 7.30 P. M. | Prize Speaking |
| 24 June Wednesday | Commencement |
| 25 June Thursday 9 A. M. | Entrance Examinations |

SUMMER VACATION

- | | |
|-------------------------------|---|
| 22 Sept. Tuesday 9 A. M. | Entrance Examinations |
| 23 Sept. Wednesday 8.15 A. M. | First half-year begins |
| 3 Oct. Saturday | Freshmen Prize Entrance Ex-
aminations begin |

1903

DEPARTMENT OF MEDICINE

- | | |
|------------------|-------------------------|
| 2 Jan. Friday | Lectures begin |
| 25 June Thursday | Exercises of Graduation |

University of Vermont 2-2-099

HISTORY AND CHARTERS

"An Act for the purpose of Founding a University at Burlington" was passed by the Legislature of Vermont, Nov. 2nd, 1791, of which the following are the Preamble and First Section:

"Whereas the education of youth is necessary for the advancement of morality, virtue and happiness, and tends to render a people or State respectable; to promote which, establishments for Seminaries and Colleges have ever been patronized by all good governments; and whereas several grants of land have already been made by the State and private liberal donations have been offered, for promoting so needful an establishment within the same, which demand the attention of this Legislature for laying the foundation of an institution so beneficent to society; therefore,

Section I. It is hereby enacted by the General Assembly of the State of Vermont, that there shall be and hereby is a College instituted and established at such a place in the township of Burlington in the County of Chittenden as the Corporators hereinafter named shall think most convenient for that purpose, to be known and designated by the style of THE UNIVERSITY OF VERMONT."

A subsequent Act gave the Corporators of the University "full power, right, and authority to appropriate to the use and benefit of the said University forever all such lands as have been already granted and reserved by the authority of this State for the use and benefit of a College."

The Act of Incorporation vested in the Trustees of the University of Vermont full power "to appoint, elect, support and remove from time to time, all such officers and servants as they shall find necessary; to direct the studies of the youth; to establish professorships and professors, and provide for their support; to make and establish all necessary rules, regulations and by-laws, for the orderly government of said University (provided always that the said rules, regulations and by-laws shall not

tend to give preference to any religious sect or denomination whatsoever); to grant and confer all such degrees, literary titles, honors and other distinctions as other Universities, Colleges and Seminaries have done or may of right do; and to do any other thing which shall be found necessary for the government and welfare of such an institution."

With the consent of the Corporation certain changes were made by the Legislature in respect to the number and the mode of election of the trustees of the University by Acts passed Nov. 2nd, 1810, and Oct. 31st, 1823; but these were, with like consent, repealed by the Act of Oct. 30th, 1838, which revived and confirmed the provisions of the original charter, which charter remains in full force at the present time, with such modifications as the Corporation of the University accepted in 1865, in accordance with the provisions of the charter of the University of Vermont and State Agricultural College.

In 1862, largely through the exertions of Hon. Justin S. Morrill, then Representative and later Senator from Vermont, Congress passed an "Act donating public lands to the several States and Territories which may provide colleges for the benefit of Agriculture and the Mechanic Arts." Under the provisions of this Act, the Legislature of Vermont chartered in 1862 the Vermont Agricultural College, which, failing to receive the support necessary to put it into operation, was by an Act approved Nov. 6, 1865, incorporated with the University of Vermont into one institution by the name of "The University of Vermont and State Agricultural College." This corporation is invested with the property, rights, powers and privileges which belonged to both or either of the corporations so combined, and "shall be and remain a body corporate forever, for the purpose of carrying out the objects contemplated in the respective charters" of the two institutions.

The "objects contemplated" in the charter of the Vermont Agricultural College are stated in the exact language of the Act of Congress providing for Colleges of Agriculture and Mechanic Arts, as follows:

"The leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

The objects contemplated in the charter of the University of Vermont are stated in the Preamble and Sections as given above.

The charter of the University of Vermont and State Agricultural College requires that "there shall, at all times, be maintained in the institution hereby created such instruction in the various branches of learning as is contemplated in the several charters of each of the institutions hereby united; and more particularly including a four years' course of studies, similar to such as are generally taught in other colleges and not inferior to that recently taught in said University of Vermont; and in addition to that which is usually taught in other colleges, the instruction in this institution shall include such enlarged facilities, and extended scope and variety in the study of those branches which relate to military tactics, agriculture and the mechanic arts, as shall render the whole instruction in conformity with said Act of Congress, as well as with the several charters aforesaid."

Section II of the Charter provides that, for the purpose of receiving property by gift, grant, bequest or otherwise, and for certain other purposes therein specified, each of the original corporations shall be deemed and treated as having continued in life.

Gifts and bequests may therefore be made to (1) the University of Vermont, (2) The Vermont Agricultural College, (3) The University of Vermont and State Agricultural College.

By the provisions of

"An act to apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for

the benefit of agriculture and the mechanic arts, established under the provisions of an Act of Congress approved July second, eighteen hundred and sixty-two," the institution receives from the United States Treasury an annual appropriation to be applied "only to instruction in Agriculture, the Mechanic Arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction."

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GENERAL STATEMENT OF INSTRUCTION

Instruction is given in the University in

I. The Department of Arts, which embraces

1. The usual Classical course in Languages, ancient and modern, Mathematics, Physical Science, Mental, Moral and Political Philosophy, Rhetoric, Literature and History, leading to the degree of *Bachelor of Arts*.

2. The Literary-Scientific course, in which the studies of the Classical course are pursued with the exception of Greek, and which leads to the degree of *Bachelor of Philosophy*.

3. The Department of Commerce and Economics.

II. The Scientific Departments, embracing the studies required (1) by the Morrill Act of 1862, which provides that instruction be given not only in "Classical and other Scientific studies," but especially in "branches of learning relating to Agricultural and the Mechanic Arts;" and (2) by the Endowment Act of 1890, which provides for instruction in "Agriculture, the Mechanic Arts, the English Language, and the various branches of Mathematical, Physical, Natural and Economic Science, with special reference to their application in the industries of life."

These Departments are

1. The Department of Engineering, which includes (a) Civil and Sanitary Engineering; (b) Electrical Engineering; (c) Mechanical Engineering.

2. The Department of Chemistry.

3. The Department of Agriculture.

The degree in each case is *Bachelor of Science*; see Index, *Degrees*.

III. The Department of Medicine, leading to the degree of *Doctor of Medicine*.

ADMISSION

Candidates for admission to the University must produce satisfactory testimonials of good moral character and must be at least sixteen years of age.

Students may be admitted to the undergraduate departments (1) by certificate, (2) by examination.

(1) Admittance by certificate from accredited schools will be granted to such students as furnish

a. A certificate of graduation, and

b. A certificate stating the completion of all the work required for entrance, specifying the amount covered in each subject and the books used. These certificates must be made out on blank forms furnished by the Registrar.

Examinations must be taken in subjects not satisfactorily covered by this second certificate. An examination in English is required of all candidates for admission, no certificates being accepted in lieu of this requirement.

(2) Students not admitted on certificate, as provided for in (1) must take examinations in all subjects required for admission.

Students who would be admitted unconditionally by certificate or by examination to the Classical department may enter without condition any of the undergraduate departments.

Students who would be admitted unconditionally by certificate or by examination to the Literary-Scientific department may enter without condition the departments of Chemistry, Agriculture, and Commerce and Economics.

Candidates for admission to the Classical and Literary-Scientific departments must be prepared in ancient and classical history down to the Christian era, including ancient and classical geography.

Candidates for admission to the Engineering, Chemical and Agricultural departments must be prepared in two of the following: mediæval, English and United States history.

Candidates for admission to the Engineering, Chemical and Agricultural departments must be prepared with two years of French, or two years of German, or an equivalent of Latin.

Candidates for admission to the Engineering, Chemical and Agricultural departments must be prepared in physics, chemistry, or (in the Agricultural department) botany.

[The requirement as to Science takes effect in 1904.]

Students coming from another college must present certificates of regular dismissal from the institution they have left, and furnish satisfactory evidence of proficiency in all the studies—or their equivalents—which have been pursued by the class they propose to enter.

For admission to an advanced class, a corresponding increase of age is required and a thorough knowledge of all the studies which have been pursued by the students of the same class.

Young women are admitted to all courses in Arts and Science upon the same conditions as young men. They are required to room and board with families approved by the Faculty.

REQUIREMENTS FOR ADMISSION TO THE CLASSICAL DEPARTMENT

Greek. (1) Greek Grammar, including Prosody; (2) Xenophon's Anabasis, four books; (3) Homer's Iliad, three books; (4) Woodruff's Greek Prose Composition, or prose work based upon the Xenophon read in class; (5) translation at sight.

Latin. (1) Latin Grammar, including Prosody; (2) Cæsar, four books; (3) Cicero, six orations including that for the Manilian Law; (4) Virgil, six books of the Aeneid and the Eclogues [or, in place of the Eclogues, 1200 lines of Ovid]; (5) Prose Composition, forty lessons; (6) translation at sight.

In the case of Latin and Greek authors substitutes will be accepted if full equivalents for the work here prescribed.

Teachers are urgently requested to give their pupils practice in reading at sight. They are also urged to have their pupils read aloud in both Greek and Latin as much as possible, that the ear may be trained to the sound of the language, and that the words may gradually come to convey a meaning to the pupil's mind immediately and not through their English equivalents.

In the pronunciation of Greek, the rules of Hadley and Allen's Grammar, pp. 4, 5, 7, should be followed. The "Roman" method of pronouncing Latin is used in the class room.

Mathematics. (1) Arithmetic, including the metric system; (2) Algebra, through Quadratic Equations; (3) Plane Geometry.

English. (1) English Composition: (a) Grammar, (b) Orthography; (2) English Literature, the examination in literature to be based for 1903, 1904, and 1905 upon the following works: Shakspeare's Merchant of Venice and Julius Cæsar; Milton's Lycidas, Comus, L'Allegro, and Il Penseroso; the Sir Roger de Coverley Papers in the Spectator; Goldsmith's The Vicar of Wakefield; Coleridge's The Ancient Mariner; Scott's Ivanhoe; Macaulay's Essays on Milton and Addison; Carlyle's Essay on Burns; Tennyson's The Princess; Lowell's The Vision of Sir Launfal; George Eliot's Silas Marner.

History. (1) Ancient and Classical, down to the Christian Era, including Ancient and Classical Geography.

LITERARY-SCIENTIFIC COURSE

The requirements for admission to the Literary-Scientific course are the same as for the Classical course, except that in place of Greek an equivalent in French or German is required.

[In 1904, as an equivalent for the preparation in Greek, some one of the following courses or combinations will be required:

- (1) three years of French,
- (2) three years of German,
- (3) two years of French and one year of German,
- (4) two years of German and one year of French,

(5) two years of either French or German and one year of History,

(6) two years of either French or German and one year of Science.

The history included under (5) may include two of the three following subjects: mediæval, English, United States.

The Science offered under (6) may be physics or chemistry, the year's work being equivalent to one hundred periods of one hour each.]

Requirements in French. (1) Proficiency in the elements of French Grammar, implying familiarity with inflection (particular attention being given to irregular verbs) and the essentials of French syntax; (2) the ability to translate ordinary French prose at sight. This should be gained by reading, concurrently with the grammar work, at least five hundred duodecimo pages of standard French prose and poetry; (3) the ability to translate easy English sentences into French, to pronounce French, and to recognize French words and phrases when uttered; (4) an elementary knowledge of the history of French literature.

Requirements in German. The following courses are suggested to those who intend to offer German as a substitute for Greek:

First Year. Joynes-Meissner German Grammar and Brandt's Reader; the latter to be followed by as much as can be read of simple works like the *Maerchen* of Andersen, Keller's *Dietegen*, or Auerbach's *Brigitta*. *Second Year.* The third part of the same grammar with selections from the *Gedichte* of Goethe, Schiller and Heine; Schiller's *Jungfrau von Orleans* and Heine's *Harzreise*.

In both of these courses the student should be given daily exercises (oral and written) in composition, in the first year translating into German detached sentences, and in the second, simple, connected English prose. Constant dictations in German as a training to the ear, are recommended. A good collection of

phrases is to be found in the Meisterschaft System of Rosenthal, and in Meissner's German Conversation.

The entrance examinations, which are both oral and written, presuppose a thorough familiarity with the principles and the practice of pronunciation, with the declension of nouns and adjectives, the conjugation of the regular and irregular verbs, and the essentials of German syntax.

Students who offer French or German for admission will not be allowed to take the elementary work in those languages, and then reckon it as a required study. They may, however, take advanced work and have it counted. Literary-Scientific students who enter with deficiencies in French or German may make up such deficiencies by taking the elementary work in those languages *in addition* to the required number of studies.

[For the Conditions of Admission to the Departments of Engineering, Chemistry, Agriculture and Medicine, consult the fuller statements of these departments.]

EXAMINATIONS FOR ADMISSION

Are held in the large hall of the Science Building (second story) at the close and at the opening of each college year. See Calendar. The results of these examinations are reported immediately to the Committee on Admission, who furnish the successful candidates with Certificates of Admission to be presented by them to the President.

SPECIAL EXAMINATION IN ENGLISH

Every candidate for admission to any undergraduate department of the University will be required, at the time of entrance, to give evidence that he can write the English language in a legible hand and with correctness in spelling, punctuation and construction. And no student will be admitted as a full matriculant until he has satisfied his examiners by a written test that he has read with care and intelligence the English works named in

the "Requirements for Admission" (p. 20) or their equivalents.

Students admitted by certificate will be regarded as being on probation the first half-year. Students admitted conditionally will be allowed one year in which to make up all deficiencies. Examinations for the removal of such deficiencies are held at 9 A. M. and 2 P. M. on the Thursday after Commencement and on the Tuesday preceding the opening of the college year. [See Index, *Conditions*.]

ADMISSION OF SPECIAL STUDENTS

Persons of suitable age and attainments may, by special permission of the Faculty and by the payment of a specified fee, pursue certain studies in connection with the regular college classes without becoming matriculate members of the University. The classes which are open to such students, with the conditions of admission, will be made known upon application to the Secretary. Special Students must satisfy the Committee of Admission as to their ability to prosecute successfully the branches which they desire to pursue, and also obtain from the President an order for their admission to the University. They will be registered and enrolled in the same manner as regular students, and from the time of their admission will be entitled to the privileges and subject to all the regulations of the University, but cannot be candidates for a degree.

ENROLLMENT

All students are required to enroll themselves in their respective courses of study at the beginning of each half-year.

On the first day of the session, from 9 A. M. to 12 M., enrollment cards may be obtained at the room of the Committee on Studies. These cards are to be filled out immediately and submitted to the Committee for their endorsement. When so endorsed they are to be presented by the students to the Instructors

for their signatures. The cards must be returned to the Committee, properly signed, within seven days.

Instructors will make up their class lists only from the endorsed cards presented by the students.

Absences will be counted from the first exercises of the studies chosen.

No changes of studies, except such as are sanctioned by the Committee, will be allowed.

Decisions regarding the choice of studies should be reached before the opening of the Annual Session. For this purpose, Instructors will gladly advise with students at any time.

REGISTRATION

Students intending to enter the University should send their Entrance Certificates or other credentials to the Committee on Admission not later than the week preceding the opening of the Fall term. They will obtain from the Committee Certificates of Admission, which are to be taken, first, to the President for his signature; then to the Treasurer to get his receipt for the Registration fee (see *EXPENSES, post*). Students are then entitled to enter their names in the Register, and so become regular members of the University.

COURSES OF INSTRUCTION *

[*CAPITALS IN ITALICS* signify: *R*, Required; *E*, Elective; *I*, *II*, *III*, *IV*, first, second, third and fourth year of the course; *A*, first half-year; *B*, second half-year. *Figures* in the same type indicate the *number of hours*, ** or exercises, per week.]

GREEK

1. Lysias, Selections.—Plato, Apology and Crito.—Homer, Odyssey, four books.—Prose Composition, based upon the prose read in the course. *R14*
2. Euripides, Iphigenia in Tauris.—Demosthenes, Olynthiacs.—Aristophanes, Clouds.—Sophocles, Oedipus Tyrannus.—Prose Composition, based upon the prose read in the course. *EII3*
3. Greek Private and Social Life.—The private life of the Greeks will be treated in lectures. Collateral reading and subjects for investigation will be assigned. The aim of the course is to present a picture of the Greeks in their daily life. *EIII&IV* (*II* by special permission) 2
4. The History of Greek Literature.—The rise and development of the various forms of Greek literature will be treated briefly in lectures. The aim of the course is to encourage the students to read, both in the class and privately, selections from as wide a field of Greek literature as possible. *EIII&IV3*

* When not otherwise specified, Courses run through the year.

** The "hour" is fifty minutes, except in laboratory work, where it is an hour and fifty minutes.

5. Aeschines, Against Ctesiphon.—Demosthenes, On the Crown.—Aeschylus, Seven Against Thebes.—Sophocles, Antigone.—Aristophanes, Frogs. *EIII&IV3*
6. Advanced Course in Greek Composition.—Study of the use of moods and tenses. *EIII&IV1*

PROFESSOR STETSON

Courses 1, 2, 5 and 6 are given this year.

LATIN

1. Livy, books i and xxi or xxii.—Tacitus, Germania and Agricola.—Plautus, Trinummus and Captivi.—Terence, Andria.—Prose Composition. *RI4*
2. Cicero, Tusculan Disputations, book i.—Horace, Odes, Epistles and Satires.—Catullus.—Prose Composition. *EIII3*
3. Quintilian, books x and xii.—Cicero, Letters.—Juvenal.—Persius. *EIII3*
4. Pliny, Letters.—Seneca, Essays and Medea.—Lucretius.—March's Latin Hymns.—Allen's Early Latin. *EIV3*
5. Prose Composition, Advanced Course. Open to those who have completed Course 2. *1*

PROFESSOR GOODRICH

ENGLISH

1. Elementary Course in Rhetoric and Composition.—Text-books, Pearson's Principles of Composition, Lewis, Forms of Discourse. The work and text-books vary with the divisions and the needs of the classes. Constant drill in composition. *RI2*
2. Criticism and Composition.—Study of Invention and of selected prose masterpieces.—Text-books, Genung's Practical Rhetoric and Rhetorical Analysis.—Constant drill

in composition.—Weekly lectures upon the history of English literature, with Stopford Brooke's Primer as a manual. *RIIS*

3. English Literature from the Restoration to the present day.—Lectures and seminary work upon the poets and important literary movements of the last two centuries.—Lectures upon the history and principles of English Versification. *E3*
4. Anglo-Saxon.—Training in early linguistic forms and in development of English.—Literary study of the Anglo-Saxon Poetry.—Text-book, Smith's Old English Grammar. *EA2*
5. Chaucer.—Supplementary to 4.—Further study of linguistic development.—Chaucer's poetry.—Collateral reading in the work of his contemporaries. *EB2*
6. Shakspeare and his Contemporaries.—Elizabethan drama, lectures and collateral reading.—Literary study and textual interpretation of selected plays of Shakspeare.—Text-books, the Globe Shakspeare, Rolfe's editions and Dowden's Primer. A study of the non-dramatic poetry of the period will complete the course. *E3*
7. American Literature.—The greatest writers of the country and past century will be studied.—Lectures, reports, and collateral reading.—Text-book, Bronson's History of American Literature, *E2*
8. Argumentation.—Lectures upon the history of oratory and the principles of debate. Practice in brief-drawing and discussion. *RIII1*
9. The English Novel.—Critical study of masterpieces of English Fiction. *E2*
10. The Nineteenth Century Novel. Supplementary to 9. *E2*

Courses 3, 4, 5 and 9 will be given in 1902-03; courses 6, 7 and 10 in 1903-04. This alternation will enable the student, by a proper choice of electives, to trace through its entire history the linguistic growth and the literary development of English.

Members of the Freshman and Sophomore classes are required to deliver two selected declamations during the year. Juniors follow a course in argumentation, as prescribed above (8). Seniors are required to debate twice and to write two essays during the year.

PROFESSOR TUPPER
DR. EATON, *Rhetoric*
MR. DOTEN, *Elocution*

FRENCH

1. Elementary Course.—Grammar, Pronunciation, Composition and Translation. *I4*

Required of Literary-Scientific Freshmen who are conditioned in modern languages and of Scientific Freshmen who do not present the entrance requirements in German. Elective for Agricultural students, and for Classical Sophomores and Juniors.

2. Scientific French.—Advanced Grammar and Composition; reading of scientific prose. *I3*

Required of Scientific Freshmen who present the entrance requirements in French. Elective for others.

3. French Literature in the Seventeenth Century.—Advanced Grammar and Composition. *I3*

4. French Literature in the Eighteenth Century.—Advanced Grammar and Composition. *I3*

Either 3 or 4 is required of Literary-Scientific students who present the entrance requirements in French, but not in German, and of Academic students who have taken course 1. Students who desire to get a good knowledge of French Literature should take both 3 and 4, especially if they expect to take course 6.

5. French Life and Culture.—A. During the Middle Ages; B During the Renaissance. Lectures, translation in class, themes and collateral reading. *E2*

6. Literary Movements in France in the Nineteenth Century.—
A. Romanticism and the reaction against the movement. B. Present-day tendencies. Lectures, translation in class, themes, and collateral reading. *E2*

Courses 3 and 5 alternate regularly with courses 4 and 6. Courses 4 and 6 are given this year. Courses 5 and 6 are elective for students who have taken 3, or 4, or both, and have attained not less than grade B in the same. Under exceptional circumstances others may occasionally be admitted.

A student in the department of Arts who begins French or German in college is required to continue the study a second year.

PROFESSOR HAYES

ITALIAN

1. Elementary Italian.—Grandgent's Italian Grammar and Italian Composition; frequent drill in pronunciation; occasional memorizing of choice selections in verse and prose; daily reading of standard modern Italian authors. *E3*

Elective for students who have passed with credit in one or more courses in French.

2. Advanced Italian.—Petrarca, Rime; Tasso, La Gerusalemme Liberata; Dante, La Divina Commedia, selected cantos. *E2*

Italian 1 and Spanish 2, which alternate with Spanish 1 and Italian 2, will be offered in 1903-04.

PROFESSOR HAYES

SPANISH

1. Elementary Spanish.—Garner's Spanish Grammar; Galdos' Dona Perfecta; practice in pronunciation and in reciting from to time short selections from standard authors. If possible, at least a few of the more famous

chapters of Cervantes' *Don Quixote* will be read toward the end of the year. *E3*

Elective for students who have passed with credit in one or more courses in French.

2. Advanced Spanish.—*Don Quixote*, the more famous chapters of parts I and II; De Castro's *Las Mocedades del Cid*; select plays of Calderon. *E2*

PROFESSOR HAYES

GERMAN

1. Elementary Course.—Joynes-Melssner German Grammar with written exercises; Brandt's German Reader; Andersen's *Mærcchen*; *Gedichte*: Goethe, Schiller, Heine. Exercises in conversation based on the systems of Rosenthal and Melssner. *4*

DR. EATON

Alternative with French 1 for Classical Sophomores and, by special permission, for Literary-Scientific Freshmen who present the French required on p. 18; also for Juniors.

2. Intermediate Course. Introduction to the Classics.—Grammar, composition, conversation, reading in German, and translation at sight. Talks on the works and authors read.—Joynes-Melssner German Grammar, part third (syntax); Stein's German Exercises, Book I; Schiller's *Wilhelm Tell* and *die Jungfrau von Orleans*; Lessing's *Minna von Barnhelm*; Heine's *die Harzreise*. *3*
3. German Classics.—Reading in German and translation at sight. Lectures in English on the Modern Classic Period of German Literature. Collateral reading.—Lessing's *Nathan der Weise* and *Emilia Galotti*; Schiller's *Wallenstein*, or *Maria Stuart*, and *die Braut von Messina*; Goethe's *Faust*, part first, or *Torquato Tasso*, and *Iphigenie*, or *Egmont*. *3*

4. German Poetry and Drama in the First Half of the Nineteenth Century. Half Course.—Reading in German and translation at sight. Lectures in English on the literature of the period. Collateral reading.—Heine's *Buch der Lieder*, *Deutschland*, etc.; Kleist's *Prinz von Homburg* and *die Hermannsschlacht*; Uhland's *Ernst, Herzog von Schwaben* and *Gedichte*; Grillparzer's *Sappho*; Scheffel's *Trompeter von Saekkingen*. *A3*

MR. HAMILTON

Not given in 1902-03. See note at end of French Courses.

- 1s Elementary Course for Scientific students.—Joynes-Meissner *German Grammar* with written exercises; Brandt's *German Reader*; simple scientific prose. *4*

PROFESSOR JACOBS

- 2s Advanced Course.—Joynes-Meissner *German Grammar* (part third) with exercises in composition; Gove's *German Science Reader*; Cohn's *Ueber Bakterien*; translation of special articles. *3*

PROFESSOR TORREY

PHILOSOPHY

1. Elementary Course.—Brief general introduction to philosophy, in lectures.—Logic; text-book, Creighton's *Introductory Logic*.—Ethics; text-book, Mackenzie's *Manual of Ethics*. *RIIIS*
2. General Psychology; lectures and text-book, to be followed in the second half-year by a brief course in Experimental Psychology. In alternate years the work of the second half-year will comprise problems selected from the fields of Abnormal Psychology, Social Psychology, or the Psychology of Religion.
3. History of Philosophy.—Lectures and Weber's *History of Philosophy*. *EIV2*

4. **Metaphysics: Fundamental problems of Philosophy; lectures and Hibben's The Problems of Philosophy.—Philosophy of Religion; text-book, Ivernach's Theism. EIV3**
5. **Philosophy in Literature. EIV1**

PROFESSOR TOWER

HISTORY

1. **General History.**—Under this head Mediæval and Modern history will be covered in three courses. These will be given in successive years, providing thus a three-years course of consecutive historical study. Collateral reading, topical investigations, and theses will be required. *E3*
 - a. **Mediæval History, from the Fall of Rome to the French Revolution.** Study of mediæval institutions, migrations, feudalism, Holy Roman Empire, papacy, crusades, towns, rise of European states, Renaissance and Reformation, colonial expansion.
 - b. **Modern European History from the French Revolution to the present.** Study of the Revolution, its causes and effects. Napoleonic wars, readjustment of Europe, Germany, Russia, industrial revolution, political and social condition of Europe.
 - c. **American History, North and South America.** Colonial period, constitutions and society. Conflict between France and England, Revolution, federal union, parties, slavery, civil war, reconstruction, social condition. The emphasis upon social development.

Course c will be given in 1902-03.

2. **French Revolution.**—Seminar course. Detailed study of the causes, principles and consequences of the revolutionary movement in Europe. Investigation will be the method, with presentation of results before the class;

supplementary lectures. A working knowledge of French will be indispensable. *EIII&IVS*

3. Parliamentary Government.—Seminar course in the detailed study of the origin and development of the parliamentary system of government from Magna Charta to the cabinet. Methods same as in Course 2. *EIII&IVS*

PROFESSOR EMERSON

SOCIOLOGY

1. Social Theories.—Examination of various social schemes; Plato's Republic, Cicero's De Republica, Augustine's Civitas Dei, More's Utopia. Modern theories; Comte, Spencer, Kidd, Gumplowicz, Fouillee, Giddings, collectivism, communism, socialism.
2. Industrial Era.—A study of modern society under the phase of industrialism. Industrial revolutions, inventions, factory, transportation, trade, the modern city. Reaction upon state, culture, religion; consequent reconstruction of society.
3. Social Institutions.—An historical investigation of their origin and development; primitive and ancient society; family, slavery, property, marriage, civil government, law, rights, classes, religion, philosophy, agriculture, industry, commerce. Lectures, with extensive collateral reading, research and theses. *EIII&IV*

Course 3 will be given in 1902-03.

PROFESSOR EMERSON

POLITICAL SCIENCE

1. Constitutional Law.—Black's Handbook, with leading cases on the U. S. Constitution. In the second half-year, some time will be given to a comparative study of the

English, French, German and Swiss constitutions.
EIII&IV2

PROFESSOR SEAMAN

2. Commercial Law.—Principles of the law relating to contracts, agency, partnership, joint-stock companies, and the formation of corporations, banking and negotiable instruments. *EIII&IVB2*

MR. SHAW

This course will be given in alternate years, and is open to students who have taken or are taking Constitutional Law. Not given in 1903-04.

3. International Law.—Text-book, Lawrence's Principles of International Law; Examination of the great cases, with frequent discussions and papers. Thesis on some one of the open questions. *EIV2*

PRESIDENT BUCKHAM

COMMERCE AND ECONOMICS

1. Economics.—Advanced Course; Walker's Political Economy with prescribed reading on the application of economic principles. Lectures and discussions. *EIII3*
2. Banking, International Trade and selected topics on the Financial Legislation of the United States. Dunbar's Theory and History of Banking; Bagehot's Lombard Street; White's Money and Banking; Goschen's Theory of Foreign Exchanges; Clare's A B C of the Foreign Exchanges, with other prescribed reading. *EIV3*
3. Economic History.—This course deals chiefly with the period since 1750. Effects of the Seven Years' Wars, the industrial revolution, the growth of the factory system, the development of transportation and commerce, and recent economic changes,—with special reference to the United States. *EIII&IV3*

Not given in 1904-05.

PROFESSOR SEAMAN

4. Industrial Organization and Resources of the United States and of the leading countries with which commercial relations have been developed. *IIII&IVA2*

5. Accounting.—The Purpose of accounts; Single and Double Entry, showing the relative merits of each; the practice of accounting for business conducted by an individual or by a partnership; adaptation of accounting to Manufacturing, Shipping, Commission and Wholesale Houses; accounts of Corporations; closing out of estates by Liquidation. *IIII3*
6. Stenography.—Sufficient instruction and practice to give the student such facility in the use of this art that he will be fully competent to take business letters from dictation, and otherwise to employ it in the work of commercial life.
7. Typewriting.—Efficient practice in the operation of the typewriter.

MR. JACKMAN

Courses 3 and 4 may be taken concurrently with Course 1. Courses 6 and 7 are open only to students in the department of Commerce and Economics. With the consent of the instructor, they may be taken as extras by students in other departments of the University. Course 7 is the equivalent of one hour.

MATHEMATICS

1. a. Algebra.—Arithmetical and Geometrical Progression, Convergence and Summation of Series, Binomial and Exponential Theorems, Logarithms, and a brief introduction to the Theory of Equations.
- b. Solid Geometry and Plane Trigonometry. *RI5*

PROFESSOR DANIELS

2. a. Analytical Geometry.
- b. Analytical Geometry continued and introduction to Differential Calculus. *EIII3*

Course 2 not given in 1902-03.

3. Differential and Integral Calculus, with a short course on Differential Equations. *EIII3*

MR. COIT

4. a. Advanced Geometry.
- b. Introduction to Modern Geometry. *EIII2 or 3*

PROFESSOR DANIELS

- 1E* a. Algebra.—Arithmetical and Geometrical Progression, Permutations and Combinations, Probability, Binomial and Exponential Theorems, Logarithms, Convergence and Summation of Series, and introduction to Theory of Equations. *I5*

- b. Plane and Analytical Trigonometry. *I5*

- c. Analytical Geometry.—Plane Analytical Geometry, Equations of the Second Degree, Solid Analytical Geometry. *I5*

- 2E* a. Differential Calculus. *II4*

- b. Integral Calculus and Differential Equations. *II4*

- c. Spherical Trigonometry and applications to Practical Astronomy. *III*

* For students in the Engineering Department.

PROFESSOR BUTTERFIELD

PHYSICS

1. General Physics.—Mechanics, properties of matter, heat, sound, light, electricity and magnetism. Text-book, Ames' Theory of Physics. Lectures and laboratory work. *4*

Required of Chemical and Engineering Sophomores. Those electing this course should be familiar with the elements of Trigonometry.

2. Electricity and Magnetism.—Nipher's Electricity and Magnetism and Carhart and Patterson's Electrical Measurements used as text-books. Lectures and laboratory work. 4
3. Heat.—Maxwell's Heat and Duhem's Potential Thermodynamique used as basis of lectures. Lectures and laboratory work. 3
4. Light.—Preston's Theory of Light and Basset's Physical Optics used as basis of lectures. Lectures and laboratory work. 2
5. Mathematical Physics.—Methods of solving the differential equations of physics with application to problems in mechanics, sound, heat and electricity. Text-books used as basis of lectures: Riemann's Partielle Differentialgleichungen, Walton's Collection of Problems in Mechanics, Donkin's Acoustics, and Fourier's Analytical Theory of Heat. Lectures. 4

PROFESSOR SLOCUM

GEOLOGY

The Course in Geology is intended primarily to meet the wants of those who, though not expecting to specialize in the subject, yet desire such knowledge of its facts and principles as every educated person should possess. About one-half of the course consists of recitations, Scott's Introduction to Geology being used as a text-book. The remainder of the time is devoted to lectures upon Historical Geology. These are illustrated by an extensive series of fossils typical of each of the great geological subdivisions. So far as practicable, excursions are taken to interesting localities in the vicinity of the College. *ELI&IVB3*

PROFESSOR PERKINS

MINERALOGY

This Course comprises Crystallography, Blow-pipe Analysis and Determinative Mineralogy. It aims to give the student a large amount of practice in identifying unknown species and a thorough knowledge of the common minerals and their economic importance. *A3*

Required of Chemical and Civil Engineering students; open to Classical and Literary-Scientific students who have taken Chemistry 1.

PROFESSOR JACOBS

BOTANY

1. Elements of Plant Biology.—Lectures and laboratory work on plant structure and physiology, followed by a comparative study of some of the lower forms of plant life. *A4*

This course is to be followed in the second half-year by Zoology 1.

2. Structural and Systematic Botany.—A study of the ferns and higher plants, with special reference to their structure and relationship and the identification of species. Field work upon special groups of plants is undertaken in the spring. Lectures, recitations and laboratory work. *B3*
3. Plant Morphology and Embryology.—Laboratory work, collateral reading and topical investigations. *A3*
4. Plant Physiology.—Experimental work in the laboratory; lectures and collateral reading. *B3*
5. Bacteriology.—Lectures, collateral reading and laboratory work. *III&IV A3*
6. Plant Pathology.—A study of the nature and causes of plant diseases, including a systematic consideration of parasitic fungi. Lectures, collateral reading, laboratory and field work. *III&IV B3*

7. Investigation.—Any student who is prepared may undertake research work upon a special topic in preparation for a graduation thesis or as a candidate for honors in botany. In exceptional cases similar work may be undertaken for credit toward a degree. The nature and extent of such work are determined by the ability and attainments of the individual student.

PROFESSOR JONES, MR. MORSE

Courses 4 and 5 are not given in 1902-03.

HORTICULTURE

1. Olericulture.—Bailey's Principles of Vegetable Gardening; lectures, laboratory and field exercises. *RIIB3*
2. Pomology.—Bailey's Principles of Fruit Growing; lectures, laboratory exercises in systematic classification of fruits; excursions to fruit growing centers. *RIIIA3*
3. Plant Breeding.—Bailey's Plant Breeding; practical exercises in greenhouse; research work in the literature of the subject. *RIIIB3*
4. Market Gardening.—Methods of growing, handling, and marketing greenhouse and outdoor crops from a commercial standpoint; lectures, text-book, and practical exercises. This course is a continuation of 1 and is intended for such students as care to pursue further this branch of horticulture. *EB2*
5. Floriculture.—A study of the propagation of flowering plants from seeds, bulbs, cuttings, division, etc.; lectures, laboratory exercises and research work. *EA2*

PROFESSOR STUART

ZOOLOGY

1. Elements of Animal Biology. A general survey of types of the animal kingdom, structure, physiology, embryology. Lectures and laboratory study of living and preserved material, both vertebrate and invertebrate.

B4

This course is preceded by Botany 1. The two constitute an introduction to General Biology.

2. Advanced course.

- a. Comparative Anatomy of four invertebrate and ten vertebrate types. *A4*
- b. Embryology of the same. Text-book, Parker and Haswell, Text-book of Zoology. Instruction in preparation of material, microscopic technique, section cutting. *B4*

Open to students who have shown proficiency in the General Biology course.

3. Entomology.—Lectures and laboratory course in structural and systematic entomology, with special reference to insects which are injurious to vegetation. *B2*

DR. PERKINS

The Biological Laboratories are well equipped with compound and dissecting microscopes, so that usually each student is supplied with both, which he is free to use during his course. Microtomes and other needed laboratory apparatus are also furnished.

PHYSIOLOGY

1. A course of informal, practical lectures upon the principles of Hygiene and Sanitary Science, including so much of Anatomy and Physiology as is necessary to a proper understanding of these principles. *R11*

MR. CLOUDMAN

2. Advanced Course.—Recitations from Martin's Human Body, supplemented by lectures, demonstrations, and a full series of Auzoux and Deyrolle Models. *ElIII&IV2*

PROFESSOR PERKINS

ANTHROPOLOGY

Lectures and collateral reading. A general survey of the ethnological, social, moral and intellectual characteristics of the principal races of the world is followed by a discussion of the origin and development of laws, government, arts, industries, language, literature and religious systems. So far as practicable the lectures are illustrated by maps, plates, photographs and specimens. *ElIII&IV3*

PROFESSOR PERKINS

ENGINEERING

DRAWING

1. a. Mechanical drawing and lettering.—Tracy's Elements of Mechanical Drawing; Reinhardt's Free Hand Lettering. *A&B2**

MR. SAWYER, MR. GRISWOLD

MATHEMATICS

1. a. Algebra.—Arithmetical and Geometrical Progression, Permutations and Combinations, Probability, Binomial and Exponential Theorems, Logarithms, Convergence and Summation of Series, and introduction to Theory of Equations. *I4*
- b. Plane and Analytical Trigonometry. *I2*
- c. Analytical Geometry.—Plane Analytical Geometry, Equations of the Second Degree, Solid Analytical Geometry. *I5*

2. a. Differential Calculus. *II4*
 b. Integral Calculus and Differential Equations. *II4*
 c. Spherical Trigonometry and applications to Practical Astronomy. *III*
3. Theory of Errors and Methods of Least Squares. General Principles and their application to engineering problems. Merriman's Method of Least Squares. *IVB2*

PROFESSOR BUTTERFIELD

APPLIED MECHANICS

1. a. Force and Energy.—Representation and Measurement of forces, their composition and resolution, equilibrium, velocity and acceleration, mechanical work, centrifugal force, energy of rotating bodies, moment of inertia, impact, centre of gravity. Elasticity and Resistance of materials, theory of flexure and torsion, shear and bending moment, elastic limit and working stresses. Determination of stresses in roof and bridge trusses, analytical and graphical methods. Lanza's Mechanics. *III4*

PROFESSOR BUTTERFIELD

MATERIALS OF CONSTRUCTION

1. Structural materials, their properties, preparation and use.
 - a. Stone, brick, lime, cement, mortar, concrete and masonry. *IIIA2*
 - b. Timber, iron, steel and other metals. *IIIB2*
 Recitations, lectures and laboratory work. Johnson's Materials of Construction.

PROFESSOR BARROWS, MR. SAWYER

* In drawing and laboratory work, the "hour" is one hour and fifty minutes.

HYDRAULICS

1. a. Hydrostatics, theoretical and actual flow of water through orifices and tubes and over weirs. Flow in pipes, conduits, canals and rivers, and methods of measurement. Merriman's *Hydraulics*. *IVA4*
- b. Hydraulic laboratory and field work. *IVB1*

PROFESSOR BARROWS

CIVIL ENGINEERING

1. Drawing.
 - a. Descriptive Geometry. *IIA3*
 - b. Stereotomy. *IIB3*
 - c. Topographical drawing, pen and colored topography. *IB1*
 - d. Mapping surveys. *IIIA3*
 - e. Problems in designing. *IVB3*

PROFESSOR BARROWS, MR. SAWYER

2. Surveying.
 - a. Use of instruments, compass, level and transit; recitations and field work. Raymond's *Surveying*. *IB2*
 - b. Summer School of Surveying. Land surveying, traversing, leveling and topographical surveying. One month in summer vacation.
 - c. Computing and plotting work of Summer School. *IIA3*
 - d. Higher Surveying; recitations, lectures and field work. Gillespie's *Higher Surveying*. *IIB2*
 - e. Summer School of Surveying. Geodetic, hydrographic and topographical surveying. One month in summer vacation.
 - f. Geodesy.—General theory and principles; triangulation and field methods; types of base apparatus;

computations of geodetic positions; trigonometric and precise leveling; map construction. The actual work in triangulation and base line work at the Summer School is utilized so far as possible. Gillespie's Higher Surveying. *III2*

3. Railroad Engineering.

- a. Railroad Curves and Earthwork; recitations and field work. Allen's Railroad Curves and Earthwork. *III2*
- b. Summer School of Surveying. Railroad field work. One month in summer vacation.

PROFESSORS BUTTERFIELD and BARROWS, MR. SAWYER

4. Highway Engineering, construction of roads, streets and pavements. Lectures, recitations, field and laboratory work. Tillson's Pavements.

MR. SAWYER

5. Engineering Construction.

- a. Foundations of structures on land and in water Lectures and recitations. Baker's Masonry Construction. *IVA2*
- b. River and harbor improvements, docks, quay walls, canal construction, etc. Lectures and recitations. *IVB1*
- c. Railroad construction, equipment and management. Lectures. *IVB1*
- d. Contracts and Specifications. Lectures and recitations. Johnson's Contracts and Specifications. *IVB1*

PROFESSOR BARROWS

6. Sanitary Engineering.—Water supply, sewerage, plumbing, heating and ventilation. Lectures and recitations. Folwell's Water Supply. Folwell's Sewerage. *IV3*

PROFESSOR VOTY

7. Structural Engineering.

- a. Graphical statics, determination of stresses in roof and bridge trusses. *IIIB3*
- b. Bridge trusses, stresses in the various types of bridges under different systems of loading; theory of arches and retaining walls. *IVA5*
- c. Bridge design.—Complete designs of a plate girder, a roof truss and a truss bridge. Merriman and Jacoby's *Roofs and Bridges*. *IVB3*

PROFESSOR VOTEY

MECHANICAL ENGINEERING

1. a. Elementary Mechanism.—The Transmission of Motion by rolling and sliding contact, by linkages, and by wrapping connectors; trains of mechanism; aggregate combinations of mechanism. Stahl and Woods' *Elementary Mechanism*. *IIA2*
- b. Gearing and Machine Tools.—Theory and construction of correct gear tooth curves. Construction of the driving and feed mechanisms of standard machine tools. Stahl and Woods' *Elementary Mechanism*; lecture notes. *IIB3*
2. a. Steam Engineering. Analysis of plane slide valve motions by the aid of the Zeuner and Bilgram diagrams; link motions and radial reversing gears; double and detachment valve gears. Construction and use of the steam engine indicator. First and second laws of thermodynamics; laws of perfect gases and saturated vapors; elementary theory of the heat engine. Peabody's *Valve Gears for Steam Engines*; Peabody's *The Steam Engine Indicator*; Ewing's *The Steam Engine*; lecture notes. *IIIA4*

- b. Steam Engineering.—Theory and practice of the steam engine. Construction and care of steam boilers. Pumps and pumping engines. Theory and construction of the injector. Ewing's *The Steam Engine*; Peabody's and Miller's *Steam Boilers*; lecture notes. *IIIB4*
- 3. a. Dynamics of Machines.—Analysis and design of steam engine governors and fly wheels. Theory and design of multiple-expansion steam engines; lecture notes. *IVA4*
- b. Motors and the Transmission of Power.—Gas, oil and hot-air engines; hydraulic motors; rope driving; measurement of power; use of compressed air; mechanical refrigeration. Clerk's *The Gas and Oil Engine*; Flather's *Rope Driving*; Flather's *Dynamometers*; Richard's *Compressed Air*; lecture notes. *IVB4*
- c. Machine Design.—Application of mechanics to the design of steam boilers and power transmission machinery; steam engine design. Lecture notes; Kent's *Mechanical Engineer's Pocket Book*; Low and Bevis's *Machine Design*. *IVA&B3*
- 4.* Machinery and Motors.—Elementary study of steam engines, boilers, pumps and power transmission machinery. Lectures. *IVA2*
- 5. a. Mechanical Engineering Laboratory.—Determination of the errors of thermometers, steam gauges, planimeters and indicator springs; steam engine tests; tests of steam calorimeters. *IIIB2*
- b. Mechanical Engineering Laboratory.—Tests of steam boilers, pumps and air compressors, and the measurement of power. *IVB2*

* Required of Seniors in the departments of Chemistry and Civil Engineering.

6. Mill Engineering.—An elementary course on mill design and cotton spinning machinery. *IVB2*

PROFESSOR ROBINSON, MR. GRISWOLD

Drawing.

- a. Detail working drawings of machines, and construction of gear teeth. *IIA2,B1*
- b. Analysis of valve gears, and steam engine details. *IIIA3,B2*

PROFESSOR ROBINSON, MR. GRISWOLD

SHOP WORK

1. Carpentry. *B2*
2. a. Wood turning and pattern making. *A2*
b. Pattern making, moulding and founding. *B2*
3. a. Forging of iron and steel. *A3*
b. Chipping, filing and lathe work. *B3*
4. Machine shop work. *A&B3*

MR. EATON, MR. GRISWOLD

ELECTRICAL ENGINEERING

1. Elements of Electrical Engineering.—Electrical units and fundamental laws, electro-magnetism and electro-magnetic induction. Houston and Kennelly's Electrical Engineering Leaflets. *A&B2*

Required of all Engineering Sophomores.

2. Telegraphy and Telephony.—Principles underlying the action of practical systems, and the engineering features of their construction. Lectures. *A&B1*
3. Dynamo.—Theory of the dynamo and designing of dynamos and motors. Crocker's Electric Lighting and lectures. *A3*

4. Junior Electrical Laboratory.—Direct current dynamos and motors and testing of arc and incandescent lamps. *A&B3*
5. Electric Lighting.—Central station designing, detail consideration of systems of distribution touching upon all the apparatus from the boilers or water wheels to the lamps. Crocker's Electric Lighting and lectures. *B4*
6. Alternating Currents.—Theoretical principles and construction and operation of machinery employed in alternating and multiphase systems. Jackson's Alternating Currents. *A&B3*
7. Senior Electrical Laboratory.—Alternating current work, tests on railway equipment and experimental work in electro-chemistry. *A&B3*
8. Electric Railways.—Principles underlying the action of the various systems of street railways and description of apparatus used. Lectures. *A2*
9. Electric Power.—Consideration of the various systems for electrical transmission of power. Discussion of engineering features. Lectures. *B2*
10. Electro-Chemistry.—Fundamental laws and theory of electro-chemical reactions with descriptions of commercial processes and plants for the production of various metals, alkalies and chemicals. Lectures. *B1*
11. Electrical Specifications.—Outlines of forms and principal requirements to be fulfilled by electrical installations. Merrill's Specifications and lectures. *B1*
12. Electrical Engineering.—A non-mathematical exposition of the principles involved and description of apparatus and machinery employed in the most important

electrical industries. Lectures and laboratory.
A&B2

This course is required of Juniors in the Civil and Mechanical Engineering courses.

13. Electrical Engineering.—A course similar to the preceding, but designed especially for Chemists. *A2*

Required of Seniors in the Chemistry course.

PROFESSOR FREEDMAN, MR. LAMB

CHEMISTRY

1. General Chemistry.
 - a. Lectures. *A&B2*
 - b. Laboratory Work.—Elementary experiments and elementary qualitative analysis. *A&B2*
2. Qualitative Analysis.—Advanced course; laboratory work, with lectures and recitations. *A3* Elementary quantitative analysis. *B3*
3. Quantitative Analysis.—Laboratory work and lectures, with class meetings for discussion of methods. One year or longer. *4*
4. Stoichiometry.—Lectures. *A2*
5. Industrial Chemistry.
 - a. Assaying.—Ores, furnace products, etc. *A3*
 - b. Lectures.—Inspection of constructional plans of work, with occasional excursions to manufacturing establishments, when such may be made conveniently. *B2*
6. History of Chemistry.—Lectures. *B1*
7. Organic Chemistry.
 - a. Lectures.—Theory and synthesis of carbon compounds. *A&B2*

b. Laboratory Work.—Preparation of compounds, analyses, etc. 9 to 14

c. Commercial organic chemistry.—Lectures. B2

Courses 5b and 7a are given in alternate years.

8. Physiological Chemistry. A2

9. Physical Chemistry. B2

Practical use of the Spectroscope is offered to students who are qualified for that order of work, at some convenient time during the four years.

PROFESSORS MERRILL, TORREY, JACOBS, MR. WHITNEY

AGRICULTURE

1. Agronomy: soils, tillage, irrigation, drainage, fertilizers. King's Physics of the Soil; Voorhees' Fertilizers. Lectures, laboratory, recitations, collateral reading and theses. IIA6
2. Agronomy: agricultural grasses and forage plants; a study of their botanical relationships and economic values. Lectures and laboratory. IIB2
3. Zootechny.
 - a. Stock feeding; animal nutrition; fodders and feeds; feeding. Jordan's The Feeding of Animals. Lectures, recitations, collateral reading and theses.
 - b. Dairying. Wing's Milk and its Products; Farrington and Woll's Testing Milk and its Products. Lectures, laboratory work and recitations. IIIA5
4. Zootechny; stock breeding; breeds of live stock. Miles' Stock Breeding. Lectures, recitations and laboratory work (scoring cattle). IIIB3

5. Rural Engineering; farm architecture; farm mechanics.
EA1
 6. Original investigation for theses; laboratory and library research upon some subject pertaining to agriculture, botany, horticulture or veterinary science, under the direction of the instructor in charge. *IVA&B3*
PROFESSORS HILLS, JONES, RICH, STUART
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VETERINARY SCIENCE

1. Comparative Anatomy of domestic animals. Strangeway's Anatomy. Lectures and recitations. *IIA2*
2. Comparative Physiology of domestic animals. Kirk's Human Physiology. Lectures and recitations. *IIB3*
3. Histology. Kirk's Human Physiology. Lectures and recitations. *IIIA2*
4. Diseases of domestic animals; theory and practice of veterinary medicine. Lectures, recitations and clinics. *IIB3*

PROFESSOR RICH

DEPARTMENT OF ARTS

FACULTY

MATTHEW H. BUCKHAM, D. D., LL. D., President, *Political Science*
GEORGE H. PERKINS, Ph. D., *Physiology, Geology, Anthropology*
JOHN E. GOODRICH, D. D., Dean, *Latin*
SAMUEL F. EMERSON, Ph. D., *History*
NATHAN F. MERRILL, Ph. D., *Chemistry*
ARCHIBALD L. DANIELS, Sc. D., *Mathematics*
LEWIS R. JONES, Ph. B., *Botany*
ALLISON WING SLOCUM, A. M., *Physics*

FREDERICK TUPPER, JR., Ph. D., *English Literature*
CHARLES E. SEAMAN, A. M., *Political Economy*
CARLTON E. STETSON, A. M., *Greek*
CARL V. TOWER, Ph. D., *Intellectual and Moral Philosophy*
WILLIAM S. HAYES, A. B., *French and Italian*
WILBUR A. COIT, Ph. B., *Mathematics*
CARROLL W. DOTEN, A. M., *Elocution*
HORACE A. EATON, Ph. D., *Rhetoric*
THEODORE E. HAMILTON, A. M., *German*

REQUIRED AND ELECTIVE STUDIES

I. Candidates for the degree of A. B., after pursuing a required course of Greek, Latin, Mathematics, English and Hygiene through the Freshman year, are allowed to elect a certain number of their studies, the number increasing in the later years of the College course until the Senior year, when all studies, except those of the Military department, are elective. Each student is required to take such a number of Electives as will bring his total work up to sixteen recitation or lecture hours per week, including those of Military Drill. The abuse to which a system of perfectly free electives is liable is avoided by the requirement of a certain number of studies which are intended to secure some completeness and symmetry of discipline, while the number of electives permitted gives room for the development of special talents and the following out of individual predilections. The electives are offered in such a way as to permit extended study of any subject or group of subjects of which the student may wish to make a specialty. For example, Greek, Latin, English and Mathematics may be pursued through most of the time during the four years; French and German each for three years; the Natural Sciences, History, and the Social, Intellectual and Moral Sciences, for from two to three years.

The Electives embrace studies in Greek and Latin, French and German, including studies in Comparative Literature; the higher Mathematics, including Calculus and the New Geometry; History; Political and Social Science; English Literature; Chemistry, theoretical and applied, with laboratory work; Physics; Geology; Botany; Zoology; Biology; Anthropology; Metaphysics; the History of Philosophy; the Theory of Fine Art.

Other subjects, in which classes are likely to be small, like Anglo-Saxon and Italian, will be offered occasionally, at such intervals as to give all students an opportunity to take them at some time during the college course.

II. Candidates for the degree of Ph. B. will have the same required courses and the same electives as candidates for the degree of A. B., except that, omitting Greek, they will begin the study of French and German one year earlier and will select in the second year from the more advanced electives.

III. Persons who may desire to take a short academic course preparatory to the study of medicine may take the first two years of the course leading to the degree of Ph. B., with any of the electives of the entire department for which they have the requisite preparation.

IV. Students in any of the other departments may, by special permission of the Faculty, take a limited number of electives from the departments of Engineering, Chemistry and Agriculture.

V. It is assumed that the choice of electives will be made by the students with reference to some clear, deliberate purpose, and as the result of consultation with members of the Faculty. In all cases the natural sequence of studies must be observed. The Faculty reserve the right to exclude a student from any course for which his previous studies have not properly prepared him.

VI. Arrangements are made between the Academic and Medical departments by which a candidate for the degree of A. B. or Ph. B. may count certain Medical studies of the first year as

equivalents for part of his last year's Academical studies, and in this way may abridge by one year the time necessary for taking his degrees in both departments.

[The following rules will go into effect at mid-year, 1904:

A student who desires to enter the Medical Department in the middle of his Senior year and still be a candidate for a degree with his class, may do so provided he has done extra work amounting to nine hours for a half-year. His work in the Medical Department shall take the place of his regular undergraduate courses during the last half of his Senior year, but the award of his bachelor degree is conditioned upon his receiving pass-marks in all work of the first year of the Medical Department. A student thus entering the Medical Department shall pay his regular undergraduate fees for the half-year and be amenable to the rules of the Academic Department.

It is understood that this privilege is not granted to students carrying delinquencies, nor to students in a technical department except on special recommendation of the instructors in such department.]

THE CHOICE OF ELECTIVES

The studies of Freshman year are all prescribed. For Classical students they are: *Greek, Latin, Mathematics, English and Hygiene*; for Literary-Scientific students Greek is replaced by French or German.

With Sophomore year the system of Elective studies begins. It is designed to start students upon those different paths which lead to specialization in different branches. It is important therefore that studies should be chosen with a view to a definite goal. The prescribed studies of Sophomore year are *English and one Modern Language*. The Elective studies of Sophomore year are, *Greek, Latin, Elementary German, Elementary or Intermediate French, History, Mathematics, Chemistry, Physics, Biology, Botany*. If Classical studies are the goal, Greek and Latin should be chosen, and German would be a valuable acces-

sory. If it is the aim to emphasize the Literary studies, German and French should be elected. Mathematics is the best preparation for physics, and Chemistry for the biological sciences.

Every student should endeavor to secure a working knowledge of at least one modern language, and *no language should be pursued for less than two years.*

The studies for Junior year should continue the lines elected in Sophomore year, and the studies of Senior year should complete the same, but opportunity should be secured for the enrichment presented in the Philosophical, Political, Social and Historical studies. In this way a relatively high degree of specialization may be combined with the advantages of liberal studies. No student, however, will be allowed to enter a course when in the opinion of the instructor his previous studies have not properly prepared him for it.

DEPARTMENT OF ENGINEERING

FACULTY

MATTHEW H. BUCKHAM, D. D., LL. D., President.

JOSIAH W. VOTEY, C. E., Dean, *Civil Engineering*

WILLIAM H. FREEDMAN, C. E., E. E., *Electrical Engineering*

EDWARD ROBINSON, B. S., *Mechanical Engineering*

GEORGE H. PERKINS, Ph. D., *Natural History*

NATHAN F. MERRILL, Ph. D., *Chemistry*

ALLISON W. SLOCUM, A. M., *Physics*

ARTHUR D. BUTTERFIELD, M. S., *Mathematics*

HAROLD K. BARROWS, B. S., *Civil Engineering*

JAMES EATON, *Shop Work*

ELBRIDGE C. JACOBS, B. S., *Mineralogy*

FREDERICK TUPPER, JR., Ph. D., *English Language and Literature*

CHARLES E. SEAMAN, A. M., *Economics*

CARROLL W. DOTEN, A. M., *Elocution*

WILLIAM S. HAYES, A. B., *French*

HENRY AUGUSTUS TORREY, Ph. D., *German*

WILBUR C. SAWYER, B. S., *Assistant in Civil Engineering*

CLIFFORD B. GRISWOLD, B. S., *Assistant in Mechanical Engineering*

Candidates for admission to this Department must be prepared in the ordinary English branches, including arithmetic, algebra through quadratics, plane, solid and spherical geometry, English grammar and literature as prescribed for the course in Arts, page 20, English and American history, and political and physical geography.

In 1904 there will be required: two of the three following courses in history: mediaeval, English, United States; also two years in some one language (French, German, Latin), and one year of physics, or chemistry.

There are three courses of study in the Department; one in Civil Engineering, one in Mechanical Engineering, and one in Electrical Engineering, each covering four years. In laying out these courses the University has kept in mind two principles; first, that a technical course pursued in a University ought to be broadly educational; second, that it ought to be in the best sense professional. It aims to give not so much a technical apprenticeship as a professional education. All courses include the study of mathematics, chemistry, physics, theoretical and applied mechanics, English, French, German, political economy.* Technical Essays are required from students at intervals during their course, and a Graduating Thesis must be submitted by each near the close of the Senior year.

The Department is well supplied with Engineering and Scientific periodicals, including the publications of the chief Engi-

* For more detailed statement of studies, see Courses of Instruction, pages 25ff., and the Bulletin of the Department, which may be obtained by application to the Registrar of the University.

neering Societies of this country and of the English Institute of Engineers; and the Library contains a very complete list of the valuable works in the several branches of Engineering.

Graduates of the Academic course may complete the special studies of the Department in three years, or in two years where sufficient preparation has been made in mathematics, chemistry and physics.

CIVIL ENGINEERING

The special studies in Civil Engineering are arranged with the object of furnishing a broad training in the technical branches, and of giving the student a thorough and practical knowledge of the essential principles of the various branches of the profession, so that on graduation he may be well equipped to enter successfully any one of the special fields of engineering.

Drawing. The special instruction in the various kinds of Drawing is confined to the first two years, but some work in the drawing-rooms is required throughout the course, the time during the latter years being devoted to mapping Surveys and to Structural Drawing and Designing.

Surveying. The student is taught the theory, use and adjustments of all the instruments used in surveying, the methods of conducting surveys and of computing and plotting the results of the work. The Field Work in surveying is carried on mainly at the Summer School of Surveying, which is held during the four weeks following the close of the regular college year. Attendance at this school is required of all students in Civil Engineering for the first three years of their course, and the work may be elected by students of any other class or department. An annual fee of five dollars for incidental expenses is charged for this course. Any young man outside of the University who may desire a course in practical surveying, if properly fitted for the work, may be admitted to the School upon application.

During Junior year the class work in Railroad Engineering is commenced, supplemented by field work for practice in running curves and cross-sectioning. The field work is continued at the Summer School of Surveying where complete surveys are made with plans, profiles and estimates for a line of road.

In Senior year an advanced course is given covering railroad construction, equipment and management.

Materials of Construction. During Junior year four hours a week are devoted to the study of the materials of construction, and especially of the characteristics and properties that govern the selection, manufacture and use of such materials in engineering work. Laboratory tests of the physical properties of the materials form an important part of this course, and are carried on in connection with the class-room work.

Engineering Construction. In Senior year attention is given to the subjects of foundations and masonry construction, docks, quay walls, river and harbor improvements, canal construction. A course embracing a study of the law of contracts with typical specifications for recent engineering works is also taken up at this time.

Highway Engineering. The general principles relating to the location and building of country roads and city streets are first considered, followed by a detailed study of the materials and methods used in the construction of Macadam and Telford roads and the various forms of street pavements. The Engineering Laboratory has a complete equipment for testing road and paving materials.

Sanitary Engineering. This course includes a study of house plumbing, the sewerage of cities, the methods of sewage disposal, the collection, storage and distribution of water and the heating and ventilation of buildings.

Framed Structures. In the second half of Junior year a short course in graphical statics is given followed by a study of roof trusses, the stresses being determined by both graphical and

analytical methods. In the first half of Senior year the different types of modern bridges are considered and the stresses computed for both fixed and moving loads. The use of the graphical method is continued and further applied to the investigation of arches and retaining walls. The second half of Senior year is devoted to the practical work of designing framed structures, finished designs being made of several types of roof and bridge trusses. This course is well illustrated by a large collection of drawings and photographs.

Equipment. The collection of surveying instruments is sufficiently large and complete to enable the field work to be carried on to the best advantage.

The testing laboratory contains a cement machine of 2,000 pounds capacity, a Riehle testing machine of 50,000 pounds, and an Olsen machine of 200,000 pounds. These machines are equipped with the special appliances needed, including micrometers and extensometers, for properly conducting experimental work.

SYNOPSIS OF COURSES

FRESHMAN YEAR			SOPHOMORE YEAR		
	A	B		A	B
Algebra	4		Calculus	4	4
Trigonometry	2		Spher. Trigonometry & Astron.	1	2
Analytical Geometry		5	Descriptive Geometry	3	
Mechanical Drawing	2	2	Stereotomy		2
Topographical Drawing		1	Surveying, 2a, 2b	2	2
Surveying 1a	2	2	Physics	4	4
Chemistry, 1a, b	4	2	Elements of Elect. Eng.	2	2
Hygiene	1	1	English 2	2	2
English 1	2	2	German 2, or		
German 1, or			French 2	3	3
French 1	4	4	Vacation		
Vacation			Surveying 2e, one month		
Surveying 1b, one month			SENIOR YEAR		
JUNIOR YEAR					
Applied Mechanics	4	4	Hydraulics	4	
Materials of Construction 1a, b	2	2	Hydraulic Lab. and Field Work		1
Drawing 1d	2	2	Bridge Designing		3
Graphical Statics, Roof Trusses	3	3	Bridge Work, Graph. Statics.	5	
Railroad Engineering	2	2	Designing		3
Geodesy	2	2	Sanitary Engineering	3	3
Political Science 1	3	3	Highway Engineering	2	2
Mineralogy	3	3	Foundations	2	
Geology	3	3	Rivers, Harbors, Canals, etc.		1
Electrical Engineering	2	2	Railroad Engineering		1
Vacation			Contracts and Specifications.		1
Railroad Field Work, one month			Machinery and Motors	2	
			Method of Least Squares		2
			Electrical Engineering	2	
			Graduating Thesis		

MECHANICAL ENGINEERING

The technical studies of the course in Mechanical Engineering are designed to give the student a knowledge of the fundamental principles of engineering practice, together with such a training, both theoretical and practical, as will best help him to become a successful designer of machinery, or to approach from the best standpoint problems relating to the generation, transmission, and use of power. The groundwork of this instruction is given by means of recitations and lectures in the class room, and these are supplemented by extended courses in the drawing room, the workshops, and the engineering laboratory.

Class Room Work of the course proper begins in the Sophomore year with a study of elementary mechanism, gear tooth construction, and the mechanism of machine tools. The Junior year is taken up almost wholly with the general subject of steam engineering including the mechanism and thermodynamics of the steam engine, the construction and management of steam boilers and pumps, the use of the steam engine indicator, etc. In the Senior year the study of machine design is made an important feature, and instruction is given also on the subjects of governors and fly-wheels, the use of compressed air, mechanical refrigeration, measurement of power, gas and oil engines, and the multiple expansion steam engine. A short course in mill engineering, including the study of cotton spinning machinery, is also given during this year.

Drawing. Instruction and practice in drawing are given during all four years of the course. The work includes projection drawing, free hand lettering, the making of working drawings, blue-printing, and designing.

Shop-work begins in the second half of the Freshman year with instruction in carpentry, followed in the Sophomore year by wood-turning, pattern making, and foundry work. Forging, chipping and filing, and machine tool work are taught during

Junior and Senior years. The shops are well fitted up, and are supplied with equipment as follows:

The Carpenter and Pattern Shop contains, in addition to sixteen carpenter benches, and a full line of tools for manual work, thirteen wood-turning lathes, an eighteen inch pattern-makers' lathe, a buzz planer, two circular saws and a scroll saw.

The Machine Shop is equipped with filing and chipping benches, seven engine lathes, two hand lathes, a planer, a shaping machine, two upright drills, a milling machine, a grinding machine and a wet emery grinder, together with a large assortment of machinists' hand tools and fixtures.

During the past season a new Foundry of larger dimensions has been built. This is supplied with a cupola furnace, brass furnace, core-oven and a complete outfit for bench and floor moulding. A new Forge Shop has also been constructed and furnished with the most modern equipment. The shop contains twenty down-draft Sturtevant forges, the same number of anvils, a hand drill, a punching and shearing machine, and all the hand tools necessary for instruction in this branch. The forges and fans were the gift of Mr. E. N. Foss of the class of '81, while the tools were supplied by the generosity of Mr. John H. Converse of the class of '61.

Engineering Laboratory. The work in the laboratory begins in the second half of the Junior year with tests upon steam engines, pumps, injectors, etc., and is followed during the Senior year by boiler trials, the use of dynamometers, hydraulic experiments, and the testing of materials of construction. A twenty-five horse power Harris-Corliss engine, which also supplies power for the shops, two smaller vertical engines, and a fifty horse power tubular boiler are available for engine and boiler tests. The laboratory contains also a steam-driven air compressor, with receiver, a surface condenser and air pump, a large duplex steam pump, a pulsometer, two friction brakes, two transmission dyna-

mometers, indicators and planimeters, several steam calorimeters, two steam injectors arranged for testing, a steam gage tester, and numerous minor pieces of apparatus used in connection with these. For work in hydraulics there is provided an orifice tank, arranged for both high and low heads, one large and two small weighing tanks with scales, a twelve-inch weir, a three-foot weir, and a hydraulic ram.

SYNOPSIS OF COURSES

FRESHMAN YEAR			SOPHOMORE YEAR		
	A	B		A	B
Algebra	4		Calculus	4	4
Trigonometry	2		Mechanical Engineering 1a & b	2	3
Analytical Geometry		5	Drawing a	2	1
Drawing 1a	2	2	Shopwork 2a & b	2	2
Shopwork 1	2	2	Physics 1	4	4
Chemistry, 1a & b	4	4	English 2	2	2
Hygiene	1	1	French 2, or		
English 1	2	2	German 2	3	3
French 1, or					
German 1	4	4			
JUNIOR YEAR			SENIOR YEAR		
			Mechanics 3a & b	4	1
Mechanics 1a, b & c	4	4	Materials of Construc'n 1a & b	2	2
Mechanical Engineering 2a & b	4	4	Mechanical Engineering 3a & b	4	4
Mechanical Engineering 5a	4	2	Mechanical Engineering 3c ..	3	3
Drawing b	3	2	Mechanical Engineering 5b ..	3	2
Shopwork 3a & b	3	3	Mechanical Engineering 6	2	2
Political Science 1	3	3	Electric Motors	2	3
			Shopwork 4	3	3

ELECTRICAL ENGINEERING

The purely technical subjects of the course may be briefly outlined as follows: During the Sophomore year the work is confined mostly to the study of electrical units, the laws governing the steady flow of currents, calculations on the magnetic circuit, the fundamental principles underlying the action of the dynamo, together with such fundamental phenomena as constitute the elements of electrical engineering. It is thought that keeping the student's mind fixed on the subjects of his chosen profession even during vacations is of so unquestioned an advantage that during

the vacation between the sophomore and junior years he is expected to solve certain assigned problems to be presented as a memoir at the beginning of the junior year. The lecture work of the first term of the junior year is devoted almost entirely to the study of dynamo-electrical machinery, taking up in detail the construction of direct current dynamos and motors of all types. The second term is given to study in detail of the subject of electric lighting, including all the apparatus and methods employed from the central station to the lamps. A one-hour course running throughout the year covers the instruments and systems of telegraphy and telephony as employed commercially. The laboratory work of this year covers the determination of characteristic curves, dynamo and motor efficiencies, etc. During the vacation between the junior and senior year the student is required to design in detail a dynamo or motor to fulfil assigned conditions and also to report on the inspection of some existing electrical lighting or power plant.

The lecture work of the senior year is of two kinds. The theoretical subjects include the analytical and graphical treatment of circuits containing resistance, self and mutual inductance and capacity, the design of transformers, the study of the theory and operation of polyphase generators and motors, and measuring instruments. The practical subjects comprise the general treatment of the following important branches of electrical engineering: the designing of complete lighting and power plants, including the discussion of the best arrangement of power stations as to size, number and type of units; calculations on laying out distributing system, etc.; also the details of construction and operation of electric railways, dealing with such questions as the possible uses of multiphase currents, rotary converters, storage batteries, etc. Some time is also devoted in this year to electro-chemistry, specifications, etc. The laboratory work of senior year is devoted chiefly to experiments with alternators, transformers and other apparatus suitable to illustrate the theoretical

and practical subjects taken up in the lecture room. The facilities of the laboratories in the second term are to be employed in the preparation of a graduating thesis, and original work is required of each student.

The Electrical Engineering Laboratories are situated in the Williams Science Hall, and through the generosity of Dr. Williams have been well equipped with many standard electrical instruments and machines. The two laboratories in the East wing contain the following dynamos and motors: a direct current 25 kilo-watt 110 volt dynamo; a 5 H. P. 110 volt motor; a 5 kilo-watt machine, designed specially for experimental purposes and provided with duplicate parts; a Thompson-Houston arc-light dynamo; and a Westinghouse 10 H. P. machine of special design, which can be used as a direct-current dynamo or motor, as a self-exciting alternator or two-phase generator, or as a two-phase motor and rotary converter. All these machines can be driven by belts from a line shaft which is itself driven by a Westinghouse 25 H. P. three-phase motor. The latter is operated by current from the wires of a local company and can therefore be started instantly whenever needed. A large number of portable and accurate instruments of the most modern varieties are available for making tests, and the laboratories contain such other accessory apparatus as are necessary for rapid and complete tests. In the "railway" laboratory are two 50 H. P. Thompson-Houston 500 volt street-car motors, a K-2 series-multiple controller, and two friction dynamometers capable of absorbing the entire output of the motors. These are mounted and connected so that their efficiencies and power may be accurately determined under many conditions of loading.

Two rooms are devoted to photometric work. These contain a Reichsanstalt photometer with numerous accessories and light standards, a mercury pump, a storage battery, etc. A room in the basement is fitted up as an electro-metallurgy laboratory,

and furnished with a low-voltage dynamo, a slate switch-board, vats, etc. For original experiments in connection with graduating thesis, many instruments of high precision are placed at the disposal of Senior students, and a workshop containing a lathe, bandsaw and other tools operated by a Stanley electric motor, affords opportunity for the construction of special apparatus.

SYNOPSIS OF COURSES

FRESHMAN YEAR		A	B	SOPHOMORE YEAR		A	B
Algebra		4		Calculus		4	4
Trigonometry		2		Mechanical Engineering 1a & b		2	2
Analytical Geometry			5	Drawing a		2	1
Drawing 1a		2	2	Shopwork 2a		2	2
Shopwork 1			2	Physics 1		4	4
Chemistry 1a & b		4	4	English 2		2	2
Hygiene		1	1	French 2, or			
English 1		2	2	German 2		3	3
French 1, or				Elements of Electrical Eng.		2	2
German 1		4	4				
JUNIOR YEAR				SENIOR YEAR			
Mechanics 1a, b & c		4	4	Hydraulics		4	1
Mechanical Engineering 2a & b		4	4	Materials of Constr'n 1a & b		2	2
Mechanical Engineering 5a...			2	Shopwork 4		3	3
Drawing b		3	2	Alternating Currents		3	3
Shopwork		2	2	Electric Railways		2	
Dynamo		3		Electric Power			2
Electric Lighting			4	Electro-chemistry			1
Telegraphy and Telephony		1	1	Elect. Specifications			1
Elect. Eng. Laboratory		3	3	Elect. Eng. Laboratory		3	3
				Thesis			2

DEPARTMENT OF CHEMISTRY

FACULTY

MATTHEW H. BUCKHAM, D. D., LL. D., President.

NATHAN F. MERRILL, Ph. D., Dean, *Chemistry*

GEORGE H. PERKINS, Ph. D., *Natural History*

ARCHIBALD L. DANIELS, Sc. D., *Mathematics*

ALLISON W. SLOCUM, A. M., *Physics*

CHARLES F. WHITNEY, B. S., *Gen. Chem. and Qual. Anal.*
HENRY AUGUSTUS TORREY, Ph. D., *Organic and Physical Chem.*
ELBRIDGE C. JACOBS, B. S., *Mineralogy and Assaying*
FREDERICK TUPPER, JR., Ph. D., *English Language and Literature*
WILLIAM S. HAYES, A. B., *French*
WILBUR A. COIT, Ph. B., *Mathematics*
THEODORE E. HAMILTON, A. M., *German*
LEROY HOLTON SHIPMAN,
DAN GERMAN SEAGER, A. B.,
LEON MARSH PHELPS,

} *Assistants in Laboratory*

In this Department during the first year, every student attends about seventy lectures and recitations in General Chemistry, and as soon after the beginning of the year as it seems advisable, enters the laboratories, where he pursues graded and systematic work, beginning with a schedule of experiments designed to illustrate fundamental principles and cultivate familiarity with the common elements and their compounds. From the outset quantitative methods are followed as far as practicable.

Qualitative Analysis is next studied. The work includes the use of the spectroscope and the examination of commercial products. Lectures and recitations continue through the course.

After the completion of Qualitative Analysis, Quantitative Analysis is begun, the student proceeding through the simpler determinations to more difficult analyses. The course embraces gravimetric and volumetric methods with application to analyses of commercial products. Occasionally the students meet together and present statements of work done in the laboratory with discussion of methods, etc. In this way each student may derive benefit from the work done in the laboratory by the entire class.

In the Senior year Organic Chemistry is taken up both in the class-room and in the laboratory. This course involves the preparation of organic compounds and their analysis. Students of

ability will be encouraged to undertake original investigations under the special supervision of the head instructor.

Lectures are given upon Industrial processes and these lectures are occasionally supplemented with excursions to manufacturing establishments. In the third year facilities are offered, and instruction is given, in Crystallography, Mineralogy and Assaying of Ores by both fire assay and wet assay. A short course of lectures on the History of Chemistry is given.

During the Junior year instruction is given in those parts of mechanical engineering which have a direct bearing upon the chemical industries. This work includes lectures upon prime movers, boilers and pumps, the elements of machines and the proportioning of shafting, pulleys and belts, together with some actual practice in the management of boilers and steam engines. In the Senior year, a course on electric motors is given.

SYNOPSIS OF COURSES

FRESHMAN YEAR		A	B	SOPHOMORE YEAR		A	B
Chemistry, lectures	2	2		Laboratory	3	3	
Laboratory	2	2		Physics	4	4	
Mathematics 1	5	5		German 1	4	4	
Drawing	2	2		English 2	2	2	
English 1	2	2		French 2	3	3	
French 1	4	4		E. History 1	3		3
				E. Analytics	3		
JUNIOR YEAR				SENIOR YEAR			
Laboratory	4	7		Laboratory	9-13	9-13	
Assaying	3			Organic Chemistry, lectures	2	2	
Mineralogy with Blowpipe Determinations	3			Electric Motors	2		
Stoichiometry	2			Industrial Chemistry	2		
Machinery and Motors	2			History of Chemistry			1
Physiology	2			Geology			3
German 2	3	3		Theses			
Commercial Organic Chemistry	2			E. Physiological Chemistry	2		
Physical Chemistry	2						
E. Calculus	3	3					

The lectures in Organic Chemistry and in Industrial Chemistry are usually given to Juniors and Seniors together in alternate years.

Certain studies of the Senior year in the Classical Department may be optional with a corresponding amount of laboratory work throughout this year.

All the courses in Chemistry are open as electives to such students in the Classical and Literary-Scientific Departments as are qualified to pursue them.

After Freshman year, students will be required occasionally to write essays upon subjects relating to their principal study.

It is desirable that applicants for admission to full standing in the Department of Chemistry as candidates for its degree should have had the regular classical course—the usual preparation for College—at some school whose certificates are recognized by this University. The requirements as to Mathematics, English, History (ancient history excepted), Geography, French and German, are the same as are found on pp. 20 and 21. Candidates for a degree in this department must have had in their preparatory courses two years of instruction in Latin, French or German, or must pass examinations representing that amount of language training. In 1904 they must present two years in some one of the above languages and also one year's work in physics or chemistry.

Students who can pass the examinations of the first year in French, may take the second year courses in that study in their Freshman year. Those who begin French in Freshman year and German in Sophomore year must continue French through Sophomore year. Students who begin German in Sophomore year must continue German during Junior year. A two years' course in both French and German is required for students who have had neither of these languages.

Students showing proper qualifications may be admitted to a special course in Chemistry by permission of the President and of the Professors of the Department, but such students cannot receive the degree.

DEPARTMENT OF AGRICULTURE

FACULTY

MATTHEW H. BUCKHAM, D. D., LL. D., President, *Political Science*

JOSEPH L. HILLS, B. S., Dean, *Agricultural Chemistry*

GEORGE H. PERKINS, Ph. D., *Natural History*

SAMUEL F. EMERSON, Ph. D., *History*

NATHAN F. MERRILL, Ph. D., *Chemistry*

ARCHIBALD L. DANIELS, Sc. D., *Mathematics*

JOSIAH W. VOTEX, C. E., *Surveying and Road Making*

LEWIS R. JONES, Ph. B., *Botany*

FRANK A. RICH, V. S., M. D., *Veterinary Med. and Stock Breeding*

FREDERICK TUPPER, JR., Ph. D., *Rhetoric and English Literature*

ALLISON W. SLOCUM, A. M., *Physics*

WILLIAM STUART, M. S., *Horticulture*

EDWARD ROBINSON, B. S., *Mechanical Engineering*

ELBRIDGE C. JACOBS, B. S., *Mineralogy*

JAMES EATON, *Shop Work*

WILLIAM S. HAYES, A. B., *French*

WILBUR A. COIT, Ph. B., *Mathematics*

WARNER J. MORSE, B. S., *Bacteriology and Agronomy*

THEODORE E. HAMILTON, A. M., *German*

CYRUS G. PRINGLE, A. M., *Keeper of Herbarium*

E. L. CHILDS, *Dairying*

Y. G. NAY, *Dairying*

The studies of the Agricultural Department are intended to impart both the theoretical and the practical knowledge necessary to success in farming, and at the same time to include enough of mathematics, literature, science and philosophy for a broadly scientific education.

Agriculture occupies a leading place in the course for three years. The course in Chemistry given during the Freshman year enables the student to gain a more thorough understanding of

soils and fertilizers; while the instruction in Botany, begun in the first half of Sophomore year, prepares the way for the intelligent consideration of the values, uses and cultivation of grasses, forage plants and crops of all kinds. The new soil-physics laboratory in the Williams Science Hall affords an excellent opportunity to study the relationship of air, water and heat to plant growth.

Stock Feeding and Breeding are taught by lectures, textbook and practical application. The students are instructed in the principles of animal nutrition, the adaptability of various fodders and feeds to farm purposes and the better methods of feeding. Abundant opportunity for illustration of breeds of live stock and for instruction in scoring animals is afforded at the College Farm and in the near vicinity.

Exceptional facilities for instruction in dairying are afforded in connection with the Dairy School, where several of the better styles of separators, churns, butter-workers, milk-testers, etc., are in use, and the student has an opportunity to become familiar with the various systems of handling milk, and expert in manipulating the apparatus.

An elective course in Rural Engineering is also offered.

Critical studies of the work of American and foreign Agricultural Experiment Stations are made in connection with each of the agricultural courses, by lectures, collateral reading and theses. Original investigation in agricultural or allied lines is required throughout Senior year in preparation for graduating thesis.

Botanical subjects are studied during the last three years of the course. The work begins with a careful study of the plant cell as fundamental to an understanding of vegetable structure and physiology. This is followed by a study of typical species of the lower plants with reference to their special structure, physiology, development and relationship. In the work upon Systematic Botany especial attention is given to the grasses, the clover

family, weed-plants and trees. Elective courses in Morphology, Embryology, and Physiology of Plants, offer opportunity for further work along similar lines. During the course in Plant Pathology a study is made of the nature and causes of plant diseases and the remedies for the same. In connection with this work there is opportunity for a special course in Bacteriology. The spraying apparatus used in the Experiment Station work, the facilities of the green-houses, bacteriological laboratory, and collections of dried and alcoholic specimens furnish opportunities for work of a thoroughly practical nature.

The new Botanical Laboratories in the Williams Science Hall are supplied with simple and compound microscopes, paraffin baths, microtomes, bacteriological apparatus, a special plant room and apparatus for the experimental study of the physiology of plants, photographic apparatus and dark room. The Herbariums of the University and the Experiment Station are open to students who are prepared to use them with profit.

Horticulture is required of students in the Agricultural course through one year and a half. The student is taught, as far as possible, both the theoretical and practical phases of horticulture in all its various applications. Lectures and text-book work are supplemented by practical exercises in the laboratory, greenhouse, garden, and orchard. Familiarity with the best literature on horticultural subjects is especially sought after.

Veterinary Science is a required study during one-half of the course. The student learns first the general structure of domestic animals by lectures, by the examination of charts, models and museum specimens, and by the dissection of animals themselves. The physiology of domestic animals is next studied, and then the microscopic structure of the various parts. The common diseases and their remedies are discussed in lectures, and free clinics are held for studying these diseases in the living animals. The subjects of inoculation, disinfection and immunity are considered in connection with the study of contagious diseases.

The Required work in mathematics includes Solid Geometry, Advanced Algebra and Trigonometry. More or less extended courses are required in Chemistry, Entomology, Geology, English, and either French or German.

Electives. During the last two years the student is allowed to select a part of his studies under the advice of instructors from any of the academic departments of the University.

The Billings Library and that of the Experiment Station are well supplied with standard works in the various departments of agriculture, botany, horticulture and veterinary science, and the leading agricultural, horticultural and botanical journals are found in the Reading Rooms.

Students in the Agricultural Department are subject to the same regulations and requirements as other students, except that residents of Vermont are not required to pay tuition or the annual fees. There is opportunity for several students to defray a part of their expenses by work.

Candidates for admission to the Agricultural Department should be prepared in mathematics, English grammar and literature, and modern history, as for admission to the courses in arts (pp. 20, 21); and should have received two years' instruction in some one language (French, German, Latin), and one year's instruction in either physics, chemistry, or botany.

SHORT COURSE IN AGRICULTURE

Students who do not wish to take the full four years' course may take a special course of one year, or of two years, selecting such studies as they are fitted to pursue. Such students may receive Certificates of Proficiency, but are not candidates for a degree.

SYNOPSIS OF COURSES

FRESHMAN YEAR		A	B	SOPHOMORE YEAR		A	B
Mathematics 1	5	5		Agriculture 1	6		
Chemistry 1	4	4		Botany 1	4		
English 1	2	2		Veterinary Science 1	2		
French 1, or				English 2	3	3	
German 1	4	4		French 2, or			
Hygiene, lectures	1	1		German 2	3	3	
				Agriculture 2	2		
				Botany 2	3		
				Veterinary Science 2	3		
				Horticulture 1	3		
JUNIOR YEAR				SENIOR YEAR			
Agriculture 3	5			Original Investigation for			
Veterinary Science 3	2			Thesis	3	3	
Horticulture 2	3			Geology		3	
Veterinary Science 4		3		Botany 6, or			
Horticulture 3		3		Agriculture 4		3	
Agriculture 4, or				E. Biology of Animals			
Botany 6	3			Bacteriology			
Entomology	2			Road Making, History			
E. Market Gardening, Horticulture, Rural Engineering, Plant Morphology, Embryology and Physiology, Shop Work, History, French, German				Political Science			
				Philosophy, Anthropology			

DAIRY SCHOOL

The twelfth annual session of the Dairy School begins on Monday, January 19th, 1903, and closes on Saturday, February 14th. The school is designed to teach in a practical manner the manufacture of butter with the latest and most improved apparatus. Three courses aggregating about fifty lectures are given on the constitution and production of milk, its creaming and churning, best methods of handling, testing, etc. Text-books with quizzes are used daily. Several hours of actual work with dairy machinery are given each day.

The class is limited to fifty, and in previous years this or a larger number of students has attended the school. The class is open to women as well as to men. The names of the class of 1902 will be found on another page. [See Index.]

DEPARTMENT OF COMMERCE AND ECONOMICS

In harmony with an educational movement which is in progress in the leading Institutions of the United States and Great Britain, the Trustees of the University of Vermont have organized a Department of Commerce and Economics. The coming century promises to be one of great industrial and commercial enterprise, and presents at once a demand and an opportunity for men of trained business ability. While native endowments and practical experience will always be leading features in business success, it is believed that in the sharper competitions of the future a decided advantage will accrue to those who have had a training wisely adapted to secure those qualities and habits, mental and moral, which promote business efficiency.

The demands and opportunities presented by a greatly enlarged and improved public service also call for an adaptation of educational methods to these new conditions.

As this department is a new one in our Universities, we shall endeavor to learn gradually and by careful study and experience, what course, or courses, will best accomplish the end in view. But the plan which naturally suggests itself is to lay a broad basis of thorough training in English, the modern languages, the mathematics, history, political and social science, and to add specialized courses in economics, commercial geography, commercial law, the history of industrial development, statistics, and to some extent the details of industrial and business operations and methods, such as book-keeping, banking and financing.

REQUIREMENTS FOR ADMISSION

Students will be admitted to the Freshman year as candidates for this course who have successfully pursued the studies included in the curricula of accredited four-year High Schools in the New England States. These studies must in all cases embrace either four years of Latin, or four years of French and German, or two years of Latin and two years of either French or German, with the Mathematics, English and History required for

admission to the Courses in Arts. See p. 20. Or Modern History may be offered. See p. 21. Students graduating from the English Course in High Schools may make up as an extra study in college the equal of two years of preparation in the modern languages. On the successful completion of the course, and the satisfaction of the other requirements for graduation, the candidate will receive a Baccalaureate degree with a certificate of proficiency in this department.

COURSE IN COMMERCE AND ECONOMICS

The following course which is tentatively proposed, and is subject to modification, extends over the Junior and Senior years. The required and elective studies of the first two years afford ample opportunity for special and practical work adapted to the probable needs of the individual student, but in choosing electives students are advised to consult with some member of this department, that a consistent selection may be made and a proper sequence observed. Students are expected to take sixteen hours a week, made up of required and elective studies.

JUNIOR YEAR

Required		Elective	
Economics.....	3	History.....	3
Modern Languages ..	3	Logic.....	3
English.....	1	Mathematics..	3
American Civil Institutions	3	Physics.....	4
Accounting.....	3	Sociology.....	3

SENIOR YEAR

Economics	3	History.....	3
Comparative Politics	} .. 2	Sociology.....	3
Constitutional Law		Modern Languages.....	3
International Law	2	English.....	2
Money, Banking, and International Trade	3		
Commercial Law	2		

DESCRIPTION OF COURSES

I. ECONOMICS

In the Junior year the course is introductory, designed to acquaint the student with general principles. Attention is given in the second half-year to such practical problems as taxation, wages, trusts, banking and currency legislation. Economics 1 must be taken by all who intend to elect the other courses of the department and can be taken with profit by those who do not intend to pursue the subject farther. Announcements will be duly made of such courses as may be taken concurrently with the introductory course.

The Senior course treats, in more detail, subjects already begun. Topics will be assigned calling for investigation in the publications of the United States government of which the University library contains a practically complete collection. The aim will be to make the student familiar with the sources of information and thus able to investigate independently. Allied courses in Sociology are given in the department of History.

II. GOVERNMENT AND LAW

In the Senior year, under the title Constitutional Law, the course offers instruction in the origin, growth, interpretation and administration of the National Constitution, together with a similar study of typical State constitutions.

In Commercial Law it is the purpose of the course to acquaint the student with the elementary principles of the common law relating to contracts in general and to the more frequent kinds of contracts met with in business,—agency, partnership, negotiable paper.

In Comparative Politics, the instruction, by lectures and required readings, is designed to acquaint the student with the growth of the federal form of government in Europe and America.

International Law will be taught by text-book (Lawrence), by lectures and by examination of the great cases.

III. LANGUAGE AND LITERATURE

This course offers instruction in four modern European languages—French, German, Italian and Spanish, of which the two last named may be taken as electives. The details of the work in these languages are given in previous pages. It is sufficient here to announce that the design of the instruction is to acquaint the student with the form, structure and literature of these languages as far as is possible in regular university work. The importance of French, German and Spanish in business is well recognized by the public and the instruction in these languages is made as practical as possible.

IV. BUSINESS LAW AND PRACTICE

In addition to the instruction in commercial law, the course offers practical instruction in accounting; the principles and methods of keeping books by both single and double entry. Following out the same practical lines, instruction is given in stenography and typewriting.

VERMONT AGRICULTURAL EXPERIMENT STATION

BOARD OF CONTROL

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MARY A. BENSON	<i>Stenographer</i>
HON. E. H. POWELL, A. M.....	<i>Treasurer</i>

The Experiment Station was established as a department of the University of Vermont and State Agricultural College in 1886. The State made a small appropriation to it for four years. The General Assembly of 1898 passed a bill providing for certain expenses incurred in the observance of the State law. Since 1888 it has received the funds appropriated by Congress under the provisions of the Act commonly known as the "Hatch Act," approved March 2, 1887. The object and duty of Experiment Stations thus established in connection with the Agricultural Colleges of the country is stated in Section 2 of that Act as follows: "It shall be the object and duty of said experiment stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping as pursued under a varying series of crops; the capacity of new plants and trees for acclimation; the analyses of soils and water; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the

varying conditions and needs of the respective States or Territories."

It is the wish of the Board of Control to make the Station as widely useful as its resources will admit. Every Vermont citizen who is concerned in agriculture, whether farmer, manufacturer or dealer, has a right to apply to the Station for any assistance that comes within its province to render, and the Station will respond so far as lies in its power. All communications relating to agriculture, horticulture, plant or animal disease, insects, etc., are fairly considered, and so far as possible, promptly answered.

The Station acts as a bureau of information upon matters of agricultural interest in a five-fold manner:

1. By the investigation of matters pertaining to the science and practice of agriculture and by the publication and distribution of the results of experiments in the form of Bulletins and Reports, and also through the medium of the agricultural, scientific, and general press.
2. By the inspection of the quality of the sundry fertilizers and feeding stuffs offered for sale, and by the control—in part—of the creamery milk-test system.
3. By direct correspondence with individuals of all classes, particularly with farmers.
4. By the personal contact of members of the station staff with the farming community at institutes, fairs, by visitation, etc.
5. By so conducting farm operations that visible and tangible evidence of the results of the application of science to agriculture may be shown to all interested.

The Station has issued since its establishment fifteen annual Reports and ninety-seven Bulletins. The publications of the past year have aggregated about 500 pages of printed matter. The reports and bulletins of the Station are sent upon application, without charge, to any address.

MILITARY INSTRUCTION

In accordance with an Act of Congress, an officer of the United States Army is stationed at the University as Professor of Military Science and Tactics, and male students in the departments of Arts and Sciences are required to take part in Military drill and instruction three hours each week. A neat, inexpensive uniform is worn during drill.

The drills take place twice a week and are so conducted as to afford healthful exercise, which, while not severe, tends to develop an erect figure and carriage. A course of military gymnastics is combined with the drill. An armory 18 by 44 feet is provided in the new gymnasium, and in bad weather the drills will be conducted in the gymnasium hall, 60 by 120 feet. The military discipline, though enforced only during the hours of drill, is designed to develop soldierly honor and those ideas of promptness, order and obedience to lawful authority which are applicable to all callings in life.

The theoretical instruction is given to each class once a week by recitations, lectures and practical work. It embraces, besides the Drill Regulations of the U. S. Army, the elementary principles which govern the art of war, such as officers of a volunteer army should be conversant with when first called into the field.

Students are marked as in other courses of instruction, and upon the graduation of each class, the names of those students who have shown especial aptitude for military service are reported to the United States War Department and to the Adjutant General of the State, and the names of the three most distinguished students in Military Science and Tactics are inserted in the United States Army Register.

The requirement of Military Instruction has been extended so as to include Seniors.

The students are organized into a battalion consisting of four companies. The officers are taken from the Senior class, the ser

geants from the Junior class, and the corporals from the Sophomore class.

REGULATIONS

ABSENCES

1. The Absences of students are in charge of a Committee of the Faculty.

2. Students in all departments of the University, with the exception of those in the Medical department, are required to attend Prayers in the Chapel on all mornings when they have a college exercise the first hour.

3. Students not in their seats at Chapel when the bell ceases tolling are marked absent.

4. A student's Unexcused Absences from Chapel exercises must not exceed twenty-five per cent. of the whole number of the exercises which he is obliged to attend under section 2. Such unexcused absences are treated as specified in sections 7 and 8.

5. Excuses for absence are granted only for sickness, and for absence incurred by students who are obliged wholly or in part to support themselves, while actually engaged in work for such support.

6. The number of unexcused absences allowed in any subject during the half-year is the same as the number of exercises held weekly in that subject. Thus in a two-hour course two absences are allowed during the half-year; in a three-hour course three absences, etc. Each student is required to keep account of his absences. Hereafter no notice of "Limit Reached" will be sent. Students must present excuse for each absence in excess of limit.

7. A student whose unexcused absences during a half-year exceed the number allowed in section 6 is placed on probation, and his parent or guardian notified of his delinquency. A student

who is placed on probation is not allowed to take part in the work of any students' organization, such as the Base Ball Team, the Glee Club, etc. (also similar class organizations), nor may he attend the convention or meeting of any secret society or other organization held outside of Burlington. *Probation in one study is probation in all studies.* In every case probation remains in effect until removed by the Absence Committee.

8. A student who, after being placed on probation, incurs further unexcused absence *in any study*, will be suspended on vote of the Absence Committee for a period of not less than ten days. While under suspension, a student, if he live away from Burlington, is required, in case the Absence Committee so direct, to return to his home. If his home be in Burlington, he is required to absent himself from the University grounds.

9. No student may be absent from Burlington, when such absence involves failure to attend any required exercise, without the permission of the Absence Committee; and leave of absence for the purpose of attending the exercises of any students' organization must also be obtained beforehand from the Committee.

10. After a Recess work is resumed with the first afternoon exercise.

11. For one day before and one day after a Recess each absence counts as two.

12. Excuses for absence must be put in writing, dated and signed, and deposited with the Secretary of the Absence Committee. Such excuses must be presented within two weeks after the absences are incurred, otherwise they will not be considered by the Committee. In case of sickness the Committee may require the certificate of a physician.

ATHLETICS

1. No athletic contest shall take place before four o'clock in the afternoon on any day but Saturday.

2. All arrangements or schedules for contests to take place out of Burlington must be submitted for approval to the Athletic Committee.

3. At least two weeks before an intended contest, the manager of any athletic organization shall submit to the Athletic Committee for its approval a list of candidates for the team.

No student will be permitted to join or continue as a member of any athletic, musical or other similar college organization unless he maintain a fair standing in all the studies of his course. The membership of such organizations shall be subject to the approval of the Committee on Studies.

Special students are not eligible to any such college organization.

EXAMINATIONS

At the close of each half-year examinations are held in the studies of that half-year. These examinations may be written, or oral, or both written and oral, or a thesis or equivalent exercise may be substituted at the discretion of the Instructor. A record is kept of the character of each student's work for the half-year and a transcript sent to the parent or guardian.

Those whose scholarship exceeds a minimum pass-mark, 60 per cent., are grouped in four classes, designated by A, B, C and D, A being the highest. Those who fail to reach a standing of 60 per cent. are assigned to a group designated by X. Absence from an examination, unless previously excused by the Instructor, is regarded as a failure. If so excused an E is recorded.

The Faculty will recommend for graduation *only those students whose work is completed by 6 P. M.* of the Wednesday preceding Commencement.

PROMOTIONS

Students are promoted from class to class at the opening of the college year by vote of the Faculty, upon recommendation of the Committee on Studies. Those who fail of such promotion are regarded as belonging to the lower class and will be so designated in the Catalogue.

Promotions will be withheld as follows:

1. From any Freshman who has not removed all entrance conditions before the opening of the Sophomore year.
2. From any student who has conditions aggregating eight hours for a half-year.
3. From any student who has conditions of a half-year's standing aggregating four hours for a half-year.

Written notice, informing him of the nature of his conditions, is sent by the Committee on Studies as soon as possible after Commencement to each student who is in danger of not being recommended to the Faculty for promotion at the opening of the next college year. Failure to receive such notice, however, will not constitute a valid objection to the operation of the above rule.

CONDITIONS

Either an E or an X constitutes a condition. The removal of conditions is governed by the following regulations:

Examinations for the removal of conditions,—other than entrance conditions,—are held at 2 o'clock on the afternoons of the first week of each examination period, in February and June. Examinations for the removal of entrance conditions are held at 9 A. M. and 2 P. M. on the Thursday after Commencement and on the Tuesday preceding the opening of the college year.

If a student fail to remove a condition at one of these examinations within a half-year from the date at which it was incurred, he will be required to repeat the work in class or with a

competent tutor at the option of the Instructor. Such work, when repeated in class, shall take precedence in case of conflicts in the hour-plan. If the student fail to pass after having repeated the work of the half-year, as required above, he loses his standing and ceases to be a member of the University, unless allowed by special vote of the Faculty to continue on probation.

For students conditioned the first half of Senior year, a special examination will be held at 2 P. M. on the first Saturday after the Spring Recess. A student failing to remove his conditions at this time loses his standing and ceases to be a candidate for graduation with that class.

RELIGIOUS SERVICES

The Institution, while not connected with any particular denominational body, and having members of many communions in its Board of Instructors, aims to impress religious truths and obligations upon all students. A responsive Religious Service is held every morning in the College Chapel, which the students are required to attend. The numerous churches of the place give to the students hospitable welcome to their services and activities.

A flourishing Young Men's Christian Association of students is maintained, under the supervision of a General Secretary. This is in close union both in sympathy and co-operative work with the Y. M. C. A. of the city. Four voluntary Bible classes with an enrollment of over sixty are conducted by its members, while a fifth group is engaged in the study of Foreign Missions. The young women of the University actively sustain a similar organization, with classes for Bible study. Members of both these Associations sometimes assist in the work of the City Mission.

HONORS

Honors may be awarded at graduation for general high standing in scholarship, and also for conspicuous attainment in a particular department, as provided below.

The candidate for Honors in general scholarship must have attained grade A in at least one-half of his work, grade B in at least one-half of the remainder, and have fallen below grade C in no department or subject.

Honors may be granted by the Faculty in any department of instruction comprised in the University, under the following conditions: The candidate must have taken with credit the equivalent of six three-hour courses (i. e., eighteen lecture "hours" or "periods" extending through the year) in the subject offered, or in such cognate subjects as may have been designated or accepted by the Head of the department in which honors are sought. He must also have passed satisfactorily a special examination in such additional work as may have been accepted or assigned by the Instructor; or have presented a satisfactory thesis on a subject previously approved; or have fulfilled both these conditions, as the Instructor in charge of the department may determine.

Applicants for Honors in special fields must make application to the Faculty in writing not later than November 1 in their Senior year; and must prepare their theses and be ready for the special examination not later than May 10.

The Honors awarded at graduation shall be indicated on the Commencement program, and the graduate who wins Honors for general high standing may have the words *cum laude*, or *magna cum laude*, inscribed on his diploma, the special addition to be determined by vote of the Faculty.

On the morning of Commencement Day an Honor List shall be published, containing the names of all who have gained honors at graduation; of all who have won prizes during the year; of those who are appointed to speak at Commencement; and of such

other graduates as may have presented essays or theses of conspicuous merit. This List shall also be printed in the next annual catalogue, with the names of the speakers on Founder's Day, and of those graduates whose proficiency in Military Art and Science has gained for them a recommendation to the Adjutant-General of the State and to the War Department of the United States.

DEGREES

For the Degrees of Bachelor of Arts and Bachelor of Philosophy see page 17.

DEGREES IN SCIENCE

The Degree of Bachelor of Science in *Civil Engineering* or in *Electrical Engineering*, or in *Mechanical Engineering*, is conferred upon students in the department of Engineering, who have completed the courses of study corresponding respectively to these titles.

The advanced degrees of Civil Engineer, Mechanical Engineer and Electrical Engineer may be conferred upon graduates from the corresponding courses, of at least four years' standing, who shall pursue a course of graduate study for one year and shall pass a satisfactory examination upon the studies of the course; and who shall, in addition, have been engaged in professional work for at least three years in positions of responsibility and have shown ability to design and execute important engineering works. The candidate must also present a satisfactory thesis upon some technical topic that shall show original investigation. The fee for each of these degrees will be twenty-five dollars.

The Degree of Bachelor of Science in *Chemistry*, is conferred upon the completion of the work required by the Department of Chemistry.

The Degree of Bachelor of Science in *Agriculture* is conferred upon students who complete the work required in the Department of Agriculture.

THE MASTER'S DEGREE

The Degree of Master of Arts or Master of Science may be conferred upon resident graduates of one year's standing of this or of any reputable college, and upon non-resident graduates of two years' standing of this University only, subject to the following regulations:

1. It is understood that a candidate in arts shall have taken the degree of Bachelor of Arts (or Bachelor of Philosophy), and that a candidate in science shall have taken the degree of Bachelor of Science. If any other sequence of degrees is proposed the candidate shall satisfy the faculty of his ability to do the work outlined.

2. Each candidate shall pursue a plan of study approved by the faculty. This plan must show a consistent and definite aim on the part of the candidate, and may include work in one or more lines; and in mere time requirement must represent at least the equivalent of four three-hour courses for the year.

3. The plan of study must be submitted and the application for candidacy formally presented to the faculty before October 10 of the college year in which the degree is sought.

4. Each candidate shall present a thesis in his single or in his principal subject, giving the results of study undertaken since graduation. He may, in addition, be required to pass an examination before the faculty. The thesis must be presented not later than May 1st, and will be deposited, if approved, in the University Library.

5. Examinations, or theses, or both, may be required by the instructor or instructors under whose guidance the candidate is studying. If written examinations are given, copies of the examination papers will be kept on file in the University Library.

6. Resident candidates, if attending regular courses or performing laboratory work under regular supervision, will be charged the same fees as undergraduates. If working only under a general supervision they may be relieved of a part of the fees; but in no case will the fee for resident candidates be less than \$25.00. The fee for non-resident candidates will be \$25.00.

Students who are not candidates for a degree may be awarded Certificates for Proficiency in recognition of the work which they have done.

EXPENSES

The Tuition Fee is \$60 per annum, one-half payable at the close of each half-year.

The annual fee of \$20 for incidental expenses is charged against all students,* one-half payable at the close of each half-year. This fee is a commutation sum for charges formerly made under several headings, and does not include charges for breakages, damages, etc., which are assessed upon the perpetrators, or, when they are unknown, upon the whole body of students.

Every student* upon entering the University is required to pay a Registration Fee of \$10. The payment of this completes the requirements for admission, and is in lieu of the first half-yearly installment of the annual fee.

All students pursuing laboratory courses are required to pay for material used. This fee varies, but has averaged in the department of Chemistry \$15, in that of Mineralogy \$5, in that of Physics \$5, in that of Mechanical Engineering \$5, in the Engineering laboratory \$2.50, and in the Biological laboratories \$2.50, for the half-year. The fee will be \$10 per half-year for all laboratory courses in Chemistry except Course 7b (Organic Laboratory) in which the fee will be \$15 per half-year. Breakage an additional charge in all courses.

* Students from Vermont in the Agricultural Department excepted.

Every student pays an annual fee of \$2 for supplying the Reading Room with periodicals.

A fee of \$8 is charged for the Diploma given at graduation, and a fee of \$5 for a Certificate of Proficiency.

An ordinary Scholarship cancels the amount of the tuition fee; a State Scholarship both the tuition and the annual fees. But no student shall have his scholarship credited upon his bills while his college work is in arrears, or while any charges stand against him on the Treasurer's books.

Special Students are not eligible to scholarships. They will be charged \$10 a half-year for each full course of study (3 hours or more), and \$5 for each half course (2 hours or less); \$5 for the use of the Library, and \$5 as Registration fee; but in no case shall a Special Student be required to pay more than the full tuition fee.

PAYMENT OF BILLS

Students temporarily absent from the University are charged as if present. Students entering an advanced class are required to pay one-half of the back tuition, unless from another college. Interest at the rate of six per cent. will be charged upon all bills from the day on which they become due.

All students will hereafter be required at the beginning of each college year, before joining their respective classes, to present to the Committee on Studies the Treasurer's certificate that they have paid up all arrearages.

ROOMS AND ROOM RENT

Room Rent in the Old College dormitories ranges from \$15.00 to \$37.50 per year, according to the location of the room and the number of the occupants. This does not include fuel and lights.

The students' rooms are furnished at the expense of the University. Students need to provide only carpets, mattresses, bed clothing and chamber ware. The beds are furnished with wire mattresses. All rents include care of room by college servants.

THE CONVERSE HALL

The Converse Hall, completed in 1895, is an elegant and substantial four-story edifice in the collegiate-gothic style, built of Rutland marble, furnishing handsome suites (single and double) for about ninety students. It is heated by steam, finished throughout in hard wood and supplied with all necessary furniture in oak. There is a fireplace in each study and all the rooms can be lighted by electricity. Each of the three sections is supplied with bathing facilities, and one of them contains a Common Room for general uses. Besides the furniture supplied in the old dormitories, the bedrooms here are furnished with hair mattresses, bolster, pillow and blankets. Rents for single suites range from \$15.00 to \$60.00; for double suites, from \$45.00 to \$55.00 for each occupant. All rooms are cared for by college servants.

The fine old mansion on Main street, lately occupied by Mr. Lawrence Barnes, and formerly by Gov. Van Ness, has been purchased and fitted up for the use of the young women students. It is surrounded by ample grounds and commands a delightful prospect. The household is under the supervision of a matron and a housekeeper. Board here is \$4.50 and \$5.00 per week, according to location of room and number of occupants.

There is a Commons Hall on the College grounds at which good table board is furnished to students at cost. The rate of board at present is \$3.00 per week, or \$2.75 if paid in advance.

Good board with room may be obtained in private families at \$4.00 to \$5.00 a week. Other expenses, for clothing, traveling, books, stationery, society and class taxes, etc., vary with the circumstances and habits of the student.

The Central Vermont and Rutland Railroads and the Champlain Transportation Company carry students for fare at mileage rates. To secure these rates, a certificate of membership in the University must be obtained from the Secretary, and forwarded to the General Passenger Agent.

THE WILLIAMS SCIENCE HALL

completed in 1896, is a fire-proof structure of granite, brick, steel and artificial stone, with rich terra cotta decoration. It is of three stories, with a lofty and well-lighted attic available for laboratory work, and a basement also adapted to the uses of the Scientific Departments. It is supplied with the latest and best devices for heating and ventilation and for practical laboratory work, and is occupied by the Chemical, Physical, Electrical and Biological sections of the University.

SCHOLARSHIPS

Scholarships affording aid to students of limited means to the amount of tuition, have been endowed as follows:

The Washburn Scholarships, twelve in number, by Daniel Washburn, M. D., of Stowe, for the benefit of young men studying for the Christian ministry, or, in default of such applicants, of other deserving young men.

The Louisa H. Howard Scholarships, seven in number, by Miss Louisa H. Howard of Burlington.

The Sarah B. Jacobs Scholarships, seven in number, by Mrs. Sarah B. Jacobs of Boston, for the benefit of graduates of Brigham Academy, at Bakersfield, Vt.

The Bertram Scholarship, by John Bertram, Esq., of Salem, Mass.

The Green Scholarship, by Horace Green, LL. D., of New York city.

The Fairbanks Scholarship, by the Hon. Erastus Fairbanks, of St. Johnsbury.

The Parker Scholarship, by the Rev. Charles C. Parker, D. D., '41, in memory of himself and son, Charles Edmund Parker, '67.

The Westford Scholarship, by the Hon. L. P. Poland, LL. D., of St. Johnsbury.

The Converse Scholarship, by John H. Converse, '61, of Philadelphia.

The Edwin Wright Marsh Scholarship, endowed by Charles P. Marsh, Esq., '39, of Woodstock, in memory of his son of the class of 1872, for the benefit, in the first instance, of students from the town of Weathersfield, Vt.

The Charles Munson Marsh Scholarship, by the same, available first for students from Woodstock, if such apply.

The Charles P. Marsh Scholarships, five in number, available first for needy and worthy young men or women from the County of Windsor.

The Lizzie S. Converse Scholarship, by bequest of Miss Lizzie S. Converse of Burlington, for poor and deserving students in the Classical department.

The Rich Scholarship, by Charles W. Rich, Esq., '36, of St. Albans.

The Rich Scholarship, by the same, for the benefit, first, of students from the town of Swanton.

The Isle La Motte Scholarship, by N. S. Hill, Esq., of Burlington, for the benefit of students from Isle La Motte, and failing such, from Craftsbury.

The Shaw Scholarship, by the Hon. William G. Shaw, of Burlington, of the class of '49.

The Class of '61 Scholarship, endowed and made available in 1891.

The Smith Scholarship, by Mrs. Samuel Sidney Smith, of Burlington.

The Morrill Scholarship, by Senator Justin S. Morrill.

The Kimball Scholarship, by Robert J. Kimball, of Randolph, Vt.

The Mary Hill Scholarship, by Mrs. Mary T. Hill, wife of Nathan S. Hill, formerly Treasurer of the University.

The Lizzie Allen Scholarships, four in number, by Miss Lizzie P. Allen, descendant of Ira Allen, Founder of the University.

The Francis Whelpley Hickok Scholarships, three in number, by Mrs. Julia F. Hickok, wife of James W. Hickok of the class of 1837, in memory of a son, a member of the class of 1871.

Appointments are made to these scholarships by the Faculty from term to term, and are conditioned on the attainment of a certain grade of scholarship and on exemplary conduct. The benefit of a scholarship is forfeited and back tuition becomes due, if a student abandons his course unnecessarily, or to join another college.

The endowment of additional scholarships would enable the University to extend its benefits to those who cannot otherwise afford the expense of a four years' maintenance in College. The minimum endowment is one thousand dollars. The annual payment of \$60 relieves one student from the payment of tuition alone; of \$80, from the payment of tuition and annual fees.

A few students may obtain a chance to cancel the tuition fee and incidental charges by acting as assistants in the Library. For more definite information inquire of the Librarian.

STATE SCHOLARSHIPS

Thirty State Scholarships, covering tuition and incidental expenses in the Classical or Scientific Departments, are now available. By an Act of the Legislature of 1898 these scholarships are limited to a period of two years. Nomination to these scholarships rests with the senators from the several counties, to whom application should be made.

THE JEDEVINE FUND

now available in part, is loaned in small sums to "poor and deserving students" in the Classical and Scientific Departments, who are residents of Vermont. The loans must be well secured, and must be repaid within a specified time after the student leaves college. Applications may be made to the Treasurer of the University.

PRIZES

THE BISSELL PRIZE FOR PROGRESS*

A prize of \$25 will be awarded to the student who, in the judgment of the Faculty, is entitled to the greatest credit for effort and attainments in his studies upon completion of the Junior year.

THE KINGSLEY PRIZES FOR ELOCUTION

Prizes of \$25, \$15 and \$10 are offered to members of the Sophomore and Freshman classes for the best declamation of passages in oratorical prose.

THE JULIA H. SPEAR PRIZES FOR YOUNG WOMEN

Prizes of \$25, \$15 and \$10 are offered to young women of the University for excellence in reading.

THE PHELPS PRIZE

A prize of \$50 in gold, endowed in memory of the late Edward Haight Phelps, C. E., class of 1872, will be awarded by the Faculty each year at Commencement to a graduate of that year in Civil Engineering who shall have exhibited conspicuous merit in professional studies, and high and noble traits of personal character. A special certificate will accompany the prize, indicating the conditions upon which it has been awarded. In case no award shall be made in any year, the same amount of money will be expended in the purchase of books on the subject of Civil Engineering for the use of the Department.

THE HOWARD PRIZES

Mrs. Hannah T. Howard of Burlington, left by will \$1,200, the income of which is to be awarded in prizes. From the income of this fund three prizes of \$25 each will be awarded in 1902 to candidates for admission to the Freshman Class who shall

* Named for the Rt. Rev. Wm. H. A. Bissell, D. D., 1886.

pass the best entrance examinations in Greek, in Latin and in Mathematics.

THE LIBRARY

The Library of the University, selected with special reference to the several departments of study, contains 65,840 volumes, including the library of the late Hon. George P. Marsh, 12,500 volumes, a collection of the highest value in the departments of Philology, European Literature and History, and Physical Geography. This collection is the gift of the late Hon. Frederick Billings of Woodstock, and is deposited in a room especially provided and elegantly appointed to receive it. The whole library has been carefully arranged by subjects with accession and shelf catalogues. A Card Catalogue on the dictionary plan is in progress, being already complete for the subjects, Literature, Philology, History, Philosophy, Religion, Natural Science and portions of Sociology, Industrial Arts and Fine Art. A full Catalogue of the Marsh Collection, by authors and subjects, has been published.

The beautiful and commodious Billings Library, erected at a cost exceeding \$150,000, with a shelving capacity of 100,000 volumes, contains the general library of the University and the special collections, with the exception of such Scientific works as are deposited in the Reading Room of the Williams Science Hall, and at the Experiment Station.

The current Periodicals with many Cyclopædias and other works of reference are to be found in the Central Hall, while the Apse, originally designed for the Marsh Collection, is now appropriated to bound sets of Periodicals, and volumes reserved for special class use.

The Hawkins Collection of books and documents relating to the Civil War is shelved in a separate room for convenience of consultation.

The Vermont books from the Chittenden Collection are also placed in a room by themselves, with the intention of ultimately gathering all documents which specially concern the history of the State into a Vermont Alcove.

The Jesuit Relations and Allied Documents, seventy-one volumes, is now completed by the publication of the Index in two thick volumes. These constitute what is probably the best arranged and every way most admirable finger-post ever provided for an extensive historical work. The name of the donor is still withheld.

From the estate of B. F. Stevens, L. H. D., London, Eng., has just been received a nearly complete set of the bibliographical and cartographical publications of his brother, Henry Stevens,—36 volumes in all. Most of these are of exceeding rarity.

Among the friends who have remembered the Library with valuable gifts are the following:

Appleton & Co., 1 volume; Professor Ayer, 7 volumes; Rev. S. L. Bates, 4 volumes, 18 pamphlets; G. G. Benedict, 1847, 3 volumes, 4 pamphlets; Prof. V. G. Barbour's estate, 175 volumes, 133 pamphlets; President Buckham, 54 volumes, 215 pamphlets; Professor Butterfield, 1 pamphlet; Boston Metrop. Water and Sewerage Bd., 12 volumes, 3 pamphlets; George E. Davis, 2 volumes, 38 pamphlets; J. B. Erhardt (1863), 1 volume; Fireside Book Club, Burlington, 28 volumes; Hon. D. J. Foster, 1 volume; Free Press Association, 8 pamphlets; Miss L. P. A. Goodhue, 13 volumes; Prof. Goodrich, 36 volumes, 78 pamphlets; S. A. Green, M. D., 5 volumes, 20 pamphlets; Hon. W. W. Grout, 9 volumes; H. W. Hill, 1876, 6 volumes; Henry Holt, 29 volumes; Bp. A. C. A. Hall, 31 pamphlets; Geo. G. Kennedy, M. D., 18 volumes [including the *Bryologia Europaea*, 7 volumes]; Opencourt Pub. Co., 400 pamphlets; Hon. E. B. Taft, 1871, 8 volumes; R. S. Taft, 1898, 8 volumes, 77 pamphlets; Prof. Torrey, 1 volume; Mrs.

Mary N. Vilas, 16 volumes, 4 pamphlets; E. M. Wilbur, 1886, 1 volume.

By courtesy of the publishers, the following Vermont newspapers are regularly received at the Library: Barre Weekly Enterprise; Brattleboro, Vermont Phoenix, weekly; Burlington Clipper, weekly; Burlington Daily Free Press; Burlington Daily News; Groton Times, weekly; Manchester Journal, weekly; Montpelier, Vermont Watchman, weekly; Morrisville News and Citizen, weekly; Rutland Herald, weekly; St. Albans Weekly Messenger; St. Johnsbury Republican, weekly; Shelburne Review, weekly.

The whole number of accessions since the last issue of the catalogue is 2,940. A part only of the Stevens-Whittinghams collection of over 2,800 volumes is included in the figures given above.

The Ware Collection of Photographs from the great Masters in painting and sculpture contains about 2,000 pieces.

The Lord Vernon Collection of Casts from Antique Gems, 2,000 in number, the gift of Mrs. Frederick Billings, is the largest and most notable of its kind in the United States. The study of the gems may be facilitated by use of the Gori Collection, 12 folio volumes, descriptive of the treasures of art in the Florentine Museum.

The income from the various funds available for the increase of the Library, including Miss Maria Loomis' bequest of \$10,000, amounts to a little over \$1,250 a year.

Mr. Frederick F. Ayer, of New York, who two years ago contributed one thousand dollars to the special library of the Department of Chemistry, has recently made a further gift of twenty-five hundred dollars for a fund, the income of which is to be applied to the maintenance of that library. This provides for the purchase of the yearly current numbers of the various sets of chemical journals which Mr. Ayer's former gift together with the

contributions of other friends of the College secured to the department.

The Library is open during term time from 8.30 A. M. to 6 P. M. on week days for consultation and drawing books, and for reading and reference on Sunday afternoons from 2 to 4 P. M., and every week day in vacation from 9 A. M. to 12 M., and from 2 to 4 P. M. The Reading Room of the Library is supplied with the leading scientific and literary periodicals. Persons not connected with the University have free use of the Library for consultation, and on special permission from the President or Librarian, are allowed to draw books. Students have also the use of the Fletcher Free Library, a collection of over 27,000 volumes.

The Library Committee solicits gifts of books and pamphlets relating to Vermont History and the lives of natives of Vermont; also of books written by Vermonters or published in this State, and of files of State papers, especially of the first half of this century or earlier.

The Committee desires also to collect all books, essays, pamphlets, etc., written by Officers or Alumni of the University, and would esteem it a great favor if such writings should be sent to the Library for permanent preservation.

THE MUSEUM

The various collections exhibited in the Museum building, though primarily gathered and arranged with reference to study and for illustrating lectures, are of general interest. The rooms are accessible to the public on week days from 9 A. M. until 5 P. M. For the general guidance of visitors the following outline of the arrangement of the specimens is given:

On the first floor is the Mineralogical collection, which contains several thousand specimens representing nearly all the species mentioned in the manuals. Some of the specimens are unusually fine, notably a splendid series of Sicilian sulphurs, celestites and associated minerals collected by the Hon. George P. Marsh, and a number of Hartz Mountains and other European minerals collected by the Rev. Edward Hungerford. There is also an extensive series of the rocks of Europe and a very complete set of the lavas of Vesuvius, the gift of Mr. Hungerford. A nearly complete set of the rocks and marbles of Vermont and several hundred specimens of foreign marbles are also placed in this room, though only a part can be shown for lack of space. Besides foreign birds and mammals, there is a nearly complete representation of the mammals, birds and fishes native to this State, and an alcoholic collection of the reptiles and fishes of the United States. There is a smaller collection of mounted skeletons of vertebrates and numerous crania and other bones, including a perfect lower jaw of the sperm whale. The nest and eggs of many of the birds common in Vermont have been obtained and most of them are arranged in cases. On this floor is a fine bas relief, dating from about 875 B. C., taken from one of the palaces at Nimroud, the gift of Mr. John H. Converse.

On the second floor of the Museum building is a large collection of shells made up of selections from the original Museum collections and from those of the Hon. L. E. Chittenden and Prof. G. W. Benedict, which were given to the Museum a few years ago. To these the fine collection of Dr. William C. Hickok has recently been added. Smaller but good collections of corals, echinoderms and sponges occupy cases near the shells. Of these the living forms are in many cases shown by the beautiful Blaschka glass models. The wall cases of this floor contain the collection of fossils. This is primarily intended to illustrate the geology of Vermont and all the horizons found in the State are well represented. All the epochs recognized in the manuals are also more

or less fully represented by specimens from various American and European localities. Several important additions to this part of the Museum have been made during the past few years. Besides several hundred specimens of coal plants from the Carboniferous of Pennsylvania and Illinois, a considerable series of plant fossils have been obtained from the Cretaceous and Tertiary of the West. There has also been added a small, but valuable collection of skulls and other parts of the skeletons of Vertebrates from the western Tertiary, including some very fine specimens of fishes from the Wyoming Green River shales.

The Archæological collections include the largest and by far the most important series of objects illustrating the prehistoric times of Vermont that has been brought together. There are several thousand specimens of the work of the former occupants of the Champlain Valley in stone, bone, copper, shell and earthenware, some of them very rude, others as finely formed and perfectly finished as the best from other parts of the United States. Smaller, but not unimportant, collections from the Ohio and Mississippi valleys and from the Pacific coast are also displayed.

The Pottery of the mound-builders and of ancient and modern Pueblo tribes is represented by numerous examples and a very interesting collection consisting of several hundred jars, dishes and vases, stone and bone implements, basket work, bits of cloth, skulls, etc., etc., from cliff houses in Mancos Canon, Colorado, has recently been placed in cases. There are a few specimens of stone and pottery from Mexico, and a much greater number from pre-Columbian graves in Nicaragua.

The Ethnological collection is constantly becoming of greater interest and value. It is placed by itself in a room recently added to the main building. There are small, but in some cases at least very choice collections of the weapons, implements and ornaments of the natives of Australia, Polynesia, Africa and Oriental countries. The very fine Reed collection of objects collected

among the Sioux Indians is of special interest, and similar specimens from the southern tribes are also exhibited.

The Numismatic Collection includes several hundred specimens of Greek and Roman coins, many of them in excellent condition, an extensive series of Colonial and United States coins, and representative pieces from most of the foreign countries. Important additions have been recently received from Gen. Rush C. Hawkins, who has sent a small but fine series of medals and Roman coins, and from Col. LeGrand B. Cannon, who has given a collection made by his son, the late Henry LeGrand Cannon. This contains, besides a number of fine medals, a hundred and fifty silver and four hundred copper pieces of American and foreign money. Many of the silver coins appear never to have been in circulation, and most are in good condition.

There are also collections of native and foreign woods, and of fruits and seeds, with several thousand specimens of insects, chiefly from New England and the northern United States.

These latter collections are none of them located in the Museum building, but may be examined upon application to the Curator.

The most important recent addition to the Museum is a large and exceedingly artistic group of beavers arranged to show the animal in its natural haunts. The group contains nine beavers of different ages, from six weeks to three years. There is a full-sized section of a lodge; part of a feeding ground with stumps, sticks, etc., cut by the animals; thirteen feet of a dam; and a representation of a part of the pond. The materials were collected in northern Maine by Mr. W. E. Balch of Lunenburg, and the work has been done by him with the utmost fidelity to nature.

Another valuable addition is a very beautifully mounted specimen of a Leaping Tuna or Bonito which, when caught, weighed 114 pounds. This fish was taken in California by the Hon. D. P. Kingsley of the class of 1881, and by him presented to the Museum.

THE CANNON COLLECTION

The collection of Oriental objects obtained in India by the late Henry LeGrand Cannon and by him bequeathed to the University is displayed in a room added to the Museum by special provision of the donor.

The collection includes fabrics and draperies, many of them exquisitely embroidered; bronze and porcelain lamps; chairs, stand, and screen of teak-wood elaborately carved; numerous articles of silver, chiefly ornamental; musical instruments; household articles of brass and iron, and other objects which cannot be catalogued here; armor, Indian, Persian and Japanese, some of it elegantly wrought with inlays of gold and silver; various articles of Tibetan origin, a shrine, prayer-wheel, amulets, etc., with fine specimens of European arms of the 15th and 16th centuries.

Should visitors find the Museum building closed, a key may be obtained at the Library.

THE HERBARIUM

The Herbarium was started by Professor Joseph Torrey before the middle of the last century. He accumulated by private collection and exchange a considerable representation of the higher plants of the Champlain valley. This was presented to the University after his death, together with some European and Asiatic specimens which had been sent to him by the Hon. Geo. P. Marsh. To these were afterwards added gifts of tropical ferns by Harry LeGrand Cannon and Mrs. Norman Williams, and of western American plants by Professor Perkins and others. During recent years an effort has been made to secure as complete a representation as possible of the Vermont flora. Many students and Vermont botanists have co-operated in this, but none more generously than Dr. A. J. Grout, who has furnished

many specimens of Vermont mosses and other plants. In addition some of the standard sets of American exsiccati, especially of the fungi, have been purchased.

During the past year two great additions have been made to the plant collections which are important, not only because of their size and general scientific value but also, and especially, because they represent the work of native Vermont genius which must ever serve as an example and stimulus to succeeding generations of botanical students. These comprise the herbarium and botanical library of Charles C. Frost of Brattleboro and the herbarium of Cyrus G. Pringle of Charlotte.

The Frost herbarium and library remained for a number of years after Mr. Frost's death in the care of the Brattleboro Society of Natural History. Recently Judge H. H. Wheeler and Mrs. E. B. Davenport, representing that society, recommended that it be placed in the keeping of the University of Vermont, and Mr. Wells S. Frost, on behalf of the heirs, has so placed it. The collection is now being so catalogued and arranged as to be more readily accessible. It is not possible as yet to state its size, but it contains several thousand specimens, chiefly cryptogams, which are of peculiar historic interest and value to Vermont botanists.

The Pringle herbarium is the product of some thirty years of the best endeavor of Cyrus G. Pringle, whose ability as a botanical collector is so well known as to make comment unnecessary. Suffice it is to say that it is unsurpassed in quality by any herbarium in existence. Its 50,000 specimens represent almost completely the known flora of North America, with a large majority of the European species and a considerable showing from other parts of the world. It is especially rich in the plants of Mexico, which has been Mr. Pringle's chosen field of botanical exploration for many years. Through the generosity of Dr. W. Seward Webb, and other friends of the University, an en-

dowment of \$10,000 has been contributed for the maintenance and further development of this herbarium. The acceptance by Mr. Pringle of the appointment as its Keeper makes it certain that rich additions will be made to the collection and its scientific value still further augmented.

The local collections and those most directly useful in undergraduate work are kept, as heretofore, in a room directly adjacent to the main botanical laboratory. The Pringle herbarium is to be located in a commodious suite of fire proof rooms on the upper floor of the Williams Science Hall.

THE GYMNASIUM

The Gymnasium Building and Drill Hall, completed in 1901, has a ground area of 100 by 140 feet, a main room of 60 by 120 feet, and the usual adjuncts of a gymnasium, including running-track, bowling-alley and shooting gallery; is furnished with bathing facilities, lockers, etc., and will be provided from time to time with the apparatus which is found to be most effective for physical development and gymnastic training.

The Director of the Gymnasium gives each student a thorough physical examination. The physical defects indicated by the measurements and strength tests are noted, and such exercises recommended as will tend to remedy them. Each student receives individual instruction in the exercises recommended.

A special exercise is assigned to each class as a whole:—to freshmen, Indian club swinging; to sophomores, dumb-bells; to juniors, fencing with single sticks; and to seniors, fencing with foils. Besides the class exercises, squad exercises will be given, consisting of chest weights, heavy gymnastics and indoor athletics.

The physical training is required of all male academic students during the first two years. A special fee of \$3.00 for the half-year is charged. This is payable in advance.

THE PARK GALLERY OF ART

TRUSTEES

Pres. M. H. BUCKHAM, *President ex-officio*

Prof. H. A. P. TORREY, *Secretary*

Hon. F. C. KENNEDY, *Treasurer*

Hon. G. G. BENEDICT

Col. LEGRAND B. CANNON

It is the aim of the Trustees of the Art Gallery to gather into a small but good collection, such works of art, paintings, engravings, models, casts, photographs, etc., as will serve to illustrate the history and the principles of both ancient and modern art. The nucleus of such a collection has already been secured. Contributions are solicited in any of the following classes, or funds for the purchase of the same:

1. Paintings—not copies—by either American or foreign artists.
2. Works of Sculpture: statues, busts, reliefs, medallions, whether originals or copies made under the eye of the sculptor.
3. Original drawings.
4. Casts from noted sculptors. These are especially valuable in art studies and are comparatively inexpensive.
5. Bronzes, terra cottas, enamels, faïences, ancient vases, works in metal and glass, tapestries, etc., in which the artistic merit is conspicuous.
6. Valuable engravings, wood-cuts and etchings.
7. Photographs from originals of the great masters in painting, and from the best works in sculpture and architecture.
8. Works on art, biographies, dictionaries, criticisms, etc. The names of donors will be inscribed on works of art presented to the gallery.

DEPARTMENT OF MEDICINE

FACULTY

MATTHEW HENRY BUCKHAM, LL. D.

President

JOHN ORDRONAU, M. D., LL. D.

Emeritus Professor of Jurisprudence

JOEL WILLISTON WRIGHT, A. M., M. D.

Emeritus Professor of the Principles and Practice of Surgery

ALBERT F. A. KING, A. M., M. D.

Professor of Obstetrics and Diseases of Women

JOHN HENRY JACKSON, A. M., M. D.

Professor of Physiology and Microscopic Anatomy

HENRY CRAIN TINKHAM, M. D.

Dean of the Faculty; Professor of General and Special Anatomy and of Clinical Surgery; Attending Surgeon to the Mary Fletcher Hospital

JAMES NATHANIEL JENNE, M. D.

Professor of Materia Medica and Therapeutics
and of Clinical Medicine

JOHN BROOKS WHEELER, A. B., M. D.

Professor of Surgery, and of Clinical and Minor Surgery;
Attending Surgeon to the Mary Fletcher Hospital

ALOYSIUS O. J. KELLY, A. M., M. D.

Professor of Theory and Practice of Medicine

HORACE L. WHITE, B. S.

Professor of Chemistry

PROFESSORS OF SPECIAL SUBJECTS

RUDOLPH A. WITTHAUS, A. M., M. D.

Professor of Toxicology

JUDSON E. CUSHMAN

Professor of Medical Jurisprudence

MARSHALL C. TWITCHELL, M. D.

Professor of Diseases of the Eye, Ear and Throat;
Ophthalmologist to the Mary Fletcher Hospital

OTTO H. SCHULTZE, A. M., M. D.

Professor of Pathology

ELLICE M. ALGER, A. B., M. D.

Professor of Dermatology

A. R. SHANDS, A. M., M. D.

Professor of Orthopaedics

WALTER D. BERRY, M. D.

Professor of Mental Diseases

A. LAPTHORN SMITH, A. B., M. D., M. R. C. S. (Eng.)

Professor of Surgical Diseases of Women

GODFREY R. PISEK, B. S., M. D.,

Professor of Diseases of Children

DAVID A. SHIBRES, A. M., M. D.

Professor of Diseases of the Nervous System

F. R. ENGLAND, M. D.

Professor of Genito-Urinary and Venereal Diseases

PATRICK E. MCSWEENEY, M. D.

Adjunct Professor of Obstetrics; Attending Physician to the Mary
Fletcher Hospital and Attending Surgeon to the Fanny Allen
Hospital

LYMAN ALLEN, A. B., M. D.

Adjunct Professor of Physiology, and
Assistant to the Chair of Surgery

HARRIS R. WATKINS, B. L., M. D.

Adjunct Professor and Demonstrator of Anatomy; Adjunct Pro-
fessor of the Theory and Practice of Medicine; Attending Physi-
cian to the Mary Fletcher Hospital

JOHN GIBSON, M. D.

Adjunct Professor of Materia Medica and Therapeutics

INSTRUCTORS

LYMAN ALLEN, A. B., M. D.

Instructor in Surgery

HARRIS R. WATKINS, B. L., M. D.

Instructor in Theory and Practice of Medicine and
Physical Diagnosis

CLIFFORD A. PEASE, M. D.

Instructor in Neurology

FREDERICK E. CLARK, M. D.

Instructor in Pathology, and Laboratory Instructor in Histology;
Consulting Physician to the Fanny Allen Hospital

CLARENCE H. BEECHER, M. D.

Instructor in Anatomy

PATRICK E. MCSWEENEY, M. D.

Instructor in Obstetrics and Gynaecology

FRED K. JACKSON, A. B., M. D.

Instructor in Physiology and Assistant Demonstrator of Anatomy

JOSEPH A. ARCHAMBAULT, M. D.

Instructor in Chemistry

BINGHAM H. STONE, A. B., M. D.

Laboratory Instructor in Bacteriology and
Clinical Microscopy

DAVID MARVIN, M. D.

Assistant Demonstrator of Anatomy

ANNOUNCEMENT 1903

The Medical Department of the University of Vermont is one of the oldest Medical Institutions in the United States. Anatomy and Surgery were taught by a Professor of these branches as early as 1809. Chemistry and Pharmacy, Botany and Materia Medica, and Physiology had professorships from 1821. In 1823

four men were graduated; in 1824, fifteen; in 1829, sixteen. From that point the number decreased till in 1836 there was only one graduate, and the department was suspended till 1854, when it was reorganized, and has since been in continuous operation.

In 1899 the Trustees of the University took entire control of the Medical Department and will hereafter administer it as an integral part of the University. They will become responsible to the State and to the public for the care and use of any funds or other gifts in aid of Medical education. They hope in this way to secure endowments for professorships, the means for the needed increase of buildings, and such additions from time to time to the apparatus and other facilities for instruction as will keep the department abreast of the most advanced Medical Institutions of the country.

The fiftieth Annual Course of Instruction will begin on Friday, January 2, 1903, and continue until June 25.

The Four-Year System of Graded Study was adopted by this school in January, 1898, and this period of study is now an inviolable requisite for graduation.

The Medical College building, given to the University by the late John P. Howard, stands on Pearl street, fronting the College Park. The lecture-room amphitheatre will seat three hundred and fifty students.

The Laboratories for Practical Chemistry and Physiology, and the Dissecting Rooms for Practical Anatomy, are ample in size, and supplied with modern conveniences and apparatus.

The Laboratories for practical work in Histology, Pathology, Bacteriology and Clinical Microscopy have recently been removed to the block, No. 54 Church street. These laboratories have been entirely refurnished and much new apparatus has been added.

The Museum of the College contains a carefully arranged collection of specimens and preparations—many of them rare—illustrating both normal and abnormal structures. It is always open to students.

The Mary Fletcher Hospital affords ample facilities for clinical instruction.

REQUIREMENTS FOR ADMISSION

Applicants will be required to pass an Entrance Examination in *Arithmetic, Grammar, Geography, Orthography, American History, English Composition* and *Elementary Physics* before they can be regularly enrolled in this department. But those who may have failed in one or more branches at these examinations may be enrolled as *conditional* students; they must make up the deficiency however during the first year.

But such Entrance Examination will not be required of those who have received a bachelor's degree from a reputable college; of those who have passed the entrance examination to the academic department in such college; of those who have received a medical student's certificate, or a certificate for any ten studies from the Regents of the University of the State of New York; or of those who have satisfactorily completed a four years' course in an accredited High School, Normal School or Academy.

Examinations for entrance will be held in January, March and June.

Students coming from other medical colleges must present evidence of having passed an entrance examination equivalent to that demanded for entering this College, or otherwise comply with the requirements for entrance to the first year.

Students desiring to enter the Second Year must present evidence of having attended one regular session in an accredited medical college, and also certificates of having satisfactorily completed laboratory courses in histology and chemistry corresponding in extent to those given in this college during the first year. In the absence of such certificates the student will be required to take during his second year the laboratory course or courses

which he has not already taken. Evidence of dissection during one regular session is also required.

Students desiring to enter the Third Year must present evidence of having attended two regular sessions at some accredited medical college or colleges, and must furnish certificates of having satisfactorily completed laboratory courses in histology, chemistry and pathology corresponding in extent to those given in this college, and of dissection during two sessions. In the absence of such certificates the student will be required to take during his third year such laboratory course, or courses, or dissection, as he has not already taken elsewhere.

Students entering the third year must pass satisfactory examinations in the subjects of anatomy, physiology, chemistry and materia medica.

Examinations in anatomy, physiology and chemistry are final.

Students desiring to enter the Fourth Year must present evidence of having attended three regular sessions in some accredited medical college or colleges.

They must also present certificates of having satisfactorily completed laboratory courses in chemistry, histology, pathology, bacteriology and clinical microscopy and physical diagnosis, practical surgery and practical obstetrics.

They will be required to pass a satisfactory examination in anatomy, physiology, chemistry, materia medica and pathology.

Examinations in anatomy, physiology and chemistry are final.

COURSE OF INSTRUCTION

FIRST YEAR

During the First Year the student receives instruction by recitations, demonstrations and didactic lectures, in Anatomy, Physiology, and Chemistry. Laboratory work in Chemistry and Histology, and Practical Anatomy by Dissection.

SECOND YEAR

During the Second Year more advanced instruction is given, by recitations, demonstrations and lectures, in the same branches of Anatomy, Physiology and Chemistry, to which are added recitations in Materia Medica, Pharmacology, Surgery, Obstetrics, General Symptomatology and Physical Diagnosis. Laboratory work in Pathology, Physiological Chemistry and Urinary Analysis. Dissections continued.

THIRD YEAR

Recitations and Lectures in Materia Medica and Therapeutics, Surgery, Practice, Pathology and Obstetrics, Recitations in Gynecology, Genito-Urinary Surgery and Diseases of the Nervous System. Practical Courses in Physical Diagnosis, Minor Surgery and Bandaging, and Demonstrative Obstetrics upon the Manikin. Laboratory work in Bacteriology, Applied Pathology and Clinical Microscopy. Medical and Surgical Clinics at the Mary Fletcher Hospital.

FOURTH YEAR

Advanced instruction in Therapeutics, Surgery, Practice, Obstetrics and Pathology. Clinical instruction in Medicine and Surgery continued. Instruction by lectures and clinics in Otolaryngology, Ophthalmology, Laryngology, Neurology, Dermatology, Gynecology, Pediatrics, Orthopedics, Mental Diseases, Genito-Urinary and Venereal Diseases. Lectures on Medical Jurisprudence and Toxicology.

Full information in regard to the several courses may be found in the special Bulletin of the Medical department.

REQUIREMENTS FOR ADVANCEMENT IN COURSE

Attendance upon all the exercises assigned for each year is obligatory upon every student. The work of each year is considered final in itself, and students are advanced from one class to the next higher class when they have satisfactorily completed the work assigned for the year and have passed the required examinations.

The standing of each student in his class at the end of the session is based upon the general character of his work in the dissecting room, in the different laboratories, and at other practical exercises, as the case may be; upon the character of his recitations; upon the results of certain bi-monthly written and practical tests; and upon the results of the examinations (written, or oral, or both) held at the end of the session. Each student must have done satisfactory work, and must have passed his examinations in all the subjects assigned for each class before he will be advanced to the next higher class.

Every student who has failed to fulfill the requirements for advancement from one class to the next higher class must present himself, at the beginning of the following session, for re-examination in the subjects in which he was conditioned.

REQUIREMENTS FOR GRADUATION

Four full sessions in four different calendar years, the last at this college, will be required of all students.

No candidate indebted to the college will be admitted to an examination.

Candidates for the degree of Doctor of Medicine must have attained the age of twenty-one years, and must present certificates of the time of study, of age and of moral character. Each candidate is required to deposit his examination fee with the Secretary of the Faculty one month before the close of the session.

He must present evidence of having satisfactorily completed the work of the first three years, and must also pass satisfactory written or oral examinations in Therapeutics, Practice of Medicine, Surgery, Obstetrics and Pathology.

He must be present at Commencement unless excused by the Faculty.

Certificates of having passed in any branch or branches in other colleges will not be accepted by this college.

Graduates of other regular Medical Colleges who desire a degree from this University must pass a satisfactory examination in Anatomy, Physiology, Chemistry, Materia Medica and Therapeutics, Practice of Medicine, Surgery, Obstetrics and Pathology.

No credit in time or in lectures shall be given any student by virtue of his degree in Pharmacy or Veterinary Surgery.

The degree of M. D. *in absentia* is not conferred by this University.

The Faculty reserve the right to terminate the relation of any student with the Medical Department, at any time, on adequate evidence of immoral character, want of principle, or intellectual unfitness for the medical profession.

FACULTY PRIZES

The Faculty have established two Prizes for general proficiency—a First Prize of Fifty Dollars and a Second Prize of Twenty-five Dollars. The prizes will be awarded as follows:

The student who has the highest rating for the entire four years will be awarded the first prize.

The student who has the second highest rating for the entire four years will be awarded the second prize.

The five students who have the five highest ratings for the entire four years will be awarded a Special Diploma of Honor.

The announcement of prizes and honor men will be made at Commencement.

The Honor Men of the class of 1902 were:

Henry Tierney Bray	Louis Leopold Davidson
Frank Floyd Finney	Henry Wade Hopkins
George Harvey Parmenter	

The First Prize was awarded to George Harvey Parmenter.
The Second Prize was awarded to Henry Tierney Bray.

FULL FEES OF THE COLLEGE

Matriculation Fee, payable each term	\$ 5.00
Full Fee for each session, if paid within thirty days.....	110.00
If not paid within thirty days	115.00
Single Tickets for those who wish to take one or more subjects and not the whole course	20.00
Fee for graduation, payable once and not returnable....	25.00

Graduates of other regular Medical Schools are admitted on payment of the matriculation fee and \$25.00.

Graduates of this school are admitted without fee.

Theological students are admitted on payment of the matriculation fee only, unless intending to graduate in medicine, in which case they will be required to conform to the above conditions.

Students will be required to deposit with the Secretary \$5.00, from which will be deducted the value of any bones taken from the Museum which are not returned, and any charge for breakage in the laboratories. The remainder of such deposit, or the whole, if there be no charge against it, will be returned to the student at the close of the term.

One-half the fee, \$55.00, must be paid within thirty days and the remainder within ninety days from the opening of the session.

Students whose fees are in arrears will not receive credit for attendance or class work.

Board may be obtained for from \$3.50 to \$5.00 per week. Good accommodations can be found for students who wish to

board themselves. Many adopt this method at a great reduction in expense. Students who intend to board themselves will find such bedding and culinary articles as they may require furnished with the rooms.

After registering, every student is furnished with a certificate entitling him to reduced rates on railroad and steamboat lines running into Burlington.

[For special arrangements of the Academic Faculty for the accommodation of young men intending to study Medicine, see page 54.]

For further particulars address the Secretary,

B. J. ANDREWS, M. D.,

Mary Fletcher Hospital,

BURLINGTON, VT.

STUDENTS

SENIOR CLASS

Leighton Emerson Abbott	Cl	Randolph	25 Lafayette
Frederika Abraham	LS	Rutland	411 Main
Harold James Adams	LS	West Haven	89 N. Prospect
Murray Bourne	LS	Burlington	36 S. C. H.
George David Brodie	Cl	Burlington	53 S. Winoski
Nathaniel Preston Brooks	Cl	Charlestown, N.H.	89 N. Prospect
Carl Brigham Brownell, A. B.	CE	Burlington	196 S. Willard
John Henry Budd	LS	Enosburg Falls	19 Hickok
Mary Ethel Colburn	Cl	Union Village	112 Loomis
Walter Alden Dane	Cl	Newport	46 S. C. H.
Lyman Moses Darling	Cl	Garfield	4 N. C.
William Janes Dodge	Cl	Burlington	55 Loomis
James Haworth Eaton	Cl	Burlington	43 S. Prospect
Wm. Reynolds Farrington	LS	Brandon	89 N. Prospect
Oliver Bowen Gilbert	Ag	Dorset	64 Colchester
Blossom Franklin Goodrich	LS	Richmond	85 S. Willard
Hollis Edward Gray	Cl	Cambridge	89 N. Prospect
Hervey Paul Gulick	Cl	Charlotte	35 N. Willard
Roy Herbert Harvey	ME	Newport	46 N. C. H.
Hattie Mason Hodge	Cl	Burlington	88 N. Prospect
Helen Lida Hodge	LS	Burlington	88 N. Prospect
Fred Martin Hollister,	Ag	Bennington	12 Exp. Station
Willard Eugene Holman	CE	Randolph	6 N. C.
Fayette Elmore Hubbard	Ag	Burlington	39 Greene
Alanson Halden Jones	Cl	Burlington	433 S. Union
Ira Phelps Kellogg, Jr.	Cl	Monkton	15 S. C.

Ag, Ch, Cl, LS, indicate Agricultural, Chemical, Classical and Literary-Scientific Courses. CE, EE, ME, stand for Civil, Electrical and Mechanical Engineering. Ec for Commerce and Economics. N. C., S. C., M. C., stand respectively for North, South and Middle College; N. C. H., S. C. H., M. C. H., for North, South and Middle Converse Hall.

STUDENTS

119

Earl Brush Kingsland	LS	Vergennes	26 N. C. H.
Howard Harrington Marsh	CE	Winchendon, Mass.	4. M. C. H.
Louis Fuller Martin	CE	Washington, D. C.	21 M. C. H.
Charles Palmer Merrill	EE	Fairfield	3 M. C. H.
Clinton James Parker	ME	North Hero	89 N. Prospect
Florence Nichols Post	Cl	St. Albans	411 Main
George Ernest Robbins	LS	N. Easton, N.Y.	89 N. Prospect
Daisy Lottie Russell	LS	Burlington	23 Hickok
Dan German Seager, A. B.	Ch	Brandon	42 Clarke
LeRoy Holton Shipman	Ch	Winooski	Winooski
Luther Pike Cheney Smith	ME	St. Johnsbury	124 N. Winooski
Arthur Duane Stearns, A. B.	Ch	Burlington	35 Loomis
Reuben Richardson Stratt, B.S.Ec		Fairfax	56 N. Willard
Cora Elizabeth Talbot	LS	Stottville, N. Y.	411 Main
Mary Louise Tracy	LS	Shelburne	23 Hickok
Arthur Hopson Valiquette	ME	Rutland	25 S. C. H.
Henry Wallace	Cl	Poughkeepsie, N.Y.	42 S.C.H.
George Frederick Wells	Ag	Bakersfield	14 Exp. Station
Charles Holmes Wheeler	LS	S. Burlington	Spear
John Gordon Wills	Ag	Chateaugay, N.Y.	13 Exp. Stat.
Clarence Field Worthen	Ec	Barre	46 S. C. H.
John Stratton Wright	Cl	Burlington	4 Loomis
Daniel Albert Young	CE	Cherry Valley, N. Y.	6 N. C.

JUNIOR CLASS

Martha Winifred Allen	LS	Burlington	36 Buell
John Henry Ayres	CE	Bennington	42 M. C. H.
Harry Barker	EE	Rutland	45 N. C. H.
Hubert Merle Bassett	CE	Taunton, Mass.	41 M. C. H.
Lillie Adriance Bean	Cl	Milton Borough	411 Main
John Frank Bowen	CE	Adams, Mass.	42 N. C. H.
John Henry Brackett	EE	Burlington	38 Hickok
Frederick Sumner Briggs	Cl	Brandon	89 N. Prospect
Edith Cook Bristol	LS	Burlington	457 Main

Chauncey Sherman Brownell	ME	<i>Burlington</i>	196 S. Willard
Maurice Augustus Burbank	CE	<i>Plympton, Mass.</i>	37 S. C. H.
Harry Cragin Burrows	Ec	<i>Burlington</i>	299 S. Union
Arthur William Clark	Ch	<i>Glover</i>	10 S. C.
Henry Chamberlain Clement	EE	<i>Burlington</i>	182 Pearl
LeRoy Bloom Cramer	EE	<i>Mechanicsville, N. Y.</i>	2 Hickok
Harry Edward Cunningham	Cl	<i>Hoosic Falls, N. Y.</i>	89 N. Prosp't
Richard Francis Darling	Ag	<i>Newbury</i>	42 N. C. H.
Roger Sherman Derby	Ch	<i>Springfield</i>	42 Clarke
R. Dwight Hitchcock Emerson	Cl	<i>Burlington</i>	56 Summit
Ralph George Gibson	Cl	<i>Hanover, N. H.</i>	4 S. C.
Anna Elizabeth Gilbert	LS	<i>Dorset</i>	64 Colchester
Alfred Holley Gilbert	Ag	<i>Dorset</i>	64 Colchester
William Williams Gilbert	Ag	<i>Dorset</i>	64 Colchester
Elmer Ellsworth Gove	LS	<i>S. Burlington</i>	Shelburne
Nathaniel George Hathorne	Ch	<i>Burlington</i>	470 S. Union
Samuel Clarke Hood	Ag	<i>Groton</i>	11 Exp. Station
Samuel Thacher Hubbard	Cl	<i>Rutland</i>	45 S. C. H.
Harold Irving Huey	Ch	<i>Springfield</i>	46 M. C. H.
Walter Minott Jenkins	Ch	<i>Springfield</i>	85 S. Willard
Geneva Aurora Jones	LS	<i>Northfeld</i>	411 Main
John Charles Kirley	CE	<i>Sheldon</i>	5 N. C.
Frances Louise Little	LS	<i>Burlington</i>	68 N. Willard
Warren Williams Mack	CE	<i>Hardwick</i>	89 N. Prospect
Friend Alonzo MacMurtry	Ag	<i>Vergennes</i>	14 Exp. Station
Durant Loomis Macrae	Cl	<i>Burlington</i>	115 Buell
Roy William Marshall	Ch	<i>Rutland</i>	45 N. C. H.
Bertha Marie Miller	Cl	<i>Lowell, Mass.</i>	411 Main
William Martin Mulheron	Cl	<i>Burlington</i>	93 Elm
Harry Hawthorne Page	Cl	<i>Hinesburgh</i>	57 N. Union
Roscoe Freeman Patterson	CE	<i>Newbury Center</i>	10 N. C.
Charles Henry Pierce	CE	<i>Royalton</i>	4 S. C.
Carl Stone Pomeroy	LS	<i>Enosburg Falls,</i>	23 Converse Ct.
Arthur Edward Pope	EE	<i>Burlington</i>	371 Main

STUDENTS

121

Carolyn Louise Preston	Cl	<i>Felchville</i>	411 Main
Emma Richardson	LS	<i>Richmond</i>	411 Main
Jacob Johnson Ross	Ag	<i>Huntington</i>	12 Exp. Station
Arthur Hayes Sargent	Cl	<i>East Corinth</i>	205 S. Prospect
Edward Thomas Shaw	EE	<i>East Arlington</i>	44 M. C. H.
John Calvin Sherburne, Jr.	Cl	<i>N. Pomfret</i>	45 S. C. H.
Helen Betsey Somers	LS	<i>Irasburg</i>	18 Clarke
Irwin Spear	LS	<i>Burlington</i>	34 Elmwood
Warren Horace Tenney	EE	<i>S. Royalton</i>	110 Pearl
Louis Nelson VanVleet	LS	<i>Burlington</i>	57 N. Union
Guy Robert Varnum	ME	<i>Burlington</i>	92 Brookes
Charles Hugh Waddell	LS	<i>Johnsburgh, N. Y.</i>	1 N. C. H.
Daniel Michael Walsh	Ag	<i>Rutland</i>	15 Exp. Station
Olin Warren Webster	Ag	<i>Irasburg</i>	16 Exp. Station
James Arthur Wellington	ME	<i>Fitchburg, Mass.</i>	43 M. C. H.
Henry Orson Wheeler, Jr.	Cl	<i>Burlington</i>	335 S. Union
Arthur LeRoy Williams	Cl	<i>Winchendon, Mass.</i>	115 Buell
Lauren Sidney Willis	Ag	<i>Portland, Me.</i>	37 Orchard

SOPHOMORE CLASS

George West Ainsworth	Ag	<i>S. Royalton</i>	63 King
Henry Vincent Allen	Ag	<i>S. Shaftsbury</i>	31 M. C. H.
Thomas Riley Barrett	CE	<i>Adams, Mass.</i>	31 M. C. H.
Alfred James Bassett	EE	<i>Taunton, Mass.</i>	41 M. C. H.
Vincent Alfred Bates	Ag	<i>East Barre</i>	20 Exp. Station
Emma Potter Bean	LS	<i>Milton Borough</i>	411 Main
Harold Calvin Bickford	ME	<i>S. Newfane</i>	13 S. C.
Roy Orville Buchanan	EE	<i>West Glover</i>	10 S. C.
Ellen Weston Catlin	Ec	<i>Winooski</i>	Winooski
Martin Wakefield Chaffee	Cl	<i>Morristown</i>	179 N. Prospect
Frank Wilbut Chamberlain	Ag	<i>Springfield</i>	15 Exp. Station
Ethel Watkins Chapman	LS	<i>Sutton</i>	411 Main
Norris William Chapman	Ag	<i>Ludlow</i>	20 Exp. Station
William Louis Chatfield	Ag	<i>Bristol</i>	5 S. C.

John Joseph Clark	EE	<i>Burlington</i>	Commons Hall
Mae Louise Clifford	Cl	<i>Burlington</i>	122 College
Isidor Coloqny	LS	<i>Brooklyn, N. Y.</i>	8 S. C.
Sarah Eliza Dean	LS	<i>Ferrisburgh</i>	411 Main
Sarah Grace Deane	Cl	<i>Watertown, N. Y.</i>	411 Main
Della May Dunsmoor	LS	<i>W. Windsor</i>	411 Main
Alice Margaret Durfee	LS	<i>Burlington</i>	128 Colchester
Mary Elizabeth Durfee	LS	<i>Burlington</i>	128 Colchester
Albert Sherman Eastman	Ch	<i>New Haven</i>	63 Buell
Daisy Maude Enright	LS	<i>Windsor</i>	106 Colchester
Belmont Aldin Fogg	Ch	<i>Newburyport, Mass.</i>	35 M.C.H.
Harley Willis Heath	Ag	<i>Montpelier</i>	17 Exp. Station
Frank George Helyar	Ag	<i>Brattleboro</i>	18 Exp. Station
Harry Grindrod Hicks	Ec	<i>Burlington</i>	169 Church
Clyde Hilton	Ch	<i>Burlington</i>	42 Grant
Lee Harris Hulet	LS	<i>Granville, N. Y.</i>	32 S. C. H.
Ruth Esther Keese	Cl	<i>Lunenburg, Mass.</i>	88N. Prosp't
George Murray Leach	EE	<i>Fletcher</i>	5 N. C.
Franklin Benjamin Lee	LS	<i>Burlington</i>	96 S. Union
Lillian Etta Mears	LS	<i>Gloucester, Mass.</i>	132 N. Win'ki
Amy Emily Metcalf	LS	<i>Williston</i>	177 S. Prospect
Everett Hiram Mott	Ch	<i>Yazoo City, Miss.</i>	62 N. Union
Leslie Hunt Newton	Ch	<i>Walden</i>	89 N. Prospect
Thomas Henry O'Halloran	CE	<i>Marlboro, Mass.</i>	4 M. C. H.
George Lee Orton	Ch	<i>Fairfax</i>	89 N. Prospect
Richard Thomas Patterson	Ag	<i>Newbury Center</i>	10 N. C.
Everett Valentine Perkins	Cl	<i>Bridgewater Corners</i>	3 N. C.
George Abel Pierce	CE	<i>St. Johnsbury</i>	89 N. Prospect
Mattie Reynolds	LS	<i>Bellows Falls</i>	57 N. Union
Leon Herbert Sault	CE	<i>Randolph</i>	63 King
Sylvia Sophia Shilvock	LS	<i>St. Albans</i>	77 Mansfield
Charles Arthur Smith	EE	<i>West Rutland</i>	41 N. C. H.
Mabel Louise Southwick	Cl	<i>Burlington</i>	280 S. Union

Everett Sayles Towne	Ch	<i>Burlington</i>	16 S. Willard
Clair Wyman Ward	Cl	<i>Moretown</i>	89 N. Prospect
Ralph Piper Ward	Ch	<i>Burlington</i>	157 Pine
Walter Henry Washburn	ME	<i>Woodstock</i>	11 S. C.
Leon Rodgers Whitcomb	Ch	<i>Lowell, Mass.</i>	37 Orchard
Leland Mason Willey	Ch	<i>Derby</i>	36 N. C. H.
John Hamilton Woodruff	Cl	<i>Brunswick, Me.</i>	42 S. C. H.
Fred Bonar Wright	EE	<i>Burlington</i>	4 Loomis
Frank Thomas Wyman	EE	<i>Manchester</i>	11 S. C.

FRESHMAN CLASS

Harold Lyman Adams	E	<i>Morrisville</i>	2 Hickok
John Hiram Bedell, Jr.	E	<i>Lawrence, Mass.</i>	150 Cherry
Charles Raymond Beers	Ch	<i>E. Charlotte</i>	34 M. C. H.
Elroy Sumner Billings	EE	<i>Stowe</i>	89 N. Prospect
Charles Frederick Black	LS	<i>Burlington</i>	198 St. Paul
Ruth Person Bond	Cl	<i>Burlington</i>	50 Loomis
Fannie Judith Boswell	LS	<i>Richford</i>	219 S. Willard
Everett Hosmer Bridgman	Cl	<i>Hardwick</i>	5 Johnson
Cleon Hickok Brownell	LS	<i>Essex Junction</i>	Essex Junction
Sidney Moore Bunker	Cl	<i>Burlington</i>	267 S. Union
William Henry Burrage	E	<i>Leominster, Mass.</i>	14 S. C.
Paul de Nyse Burrowes	E	<i>Keyport, N. J.</i>	2 Colchester
Cornelius Halsey Calkins	E	<i>Ausable Chasm, N.Y.</i>	407 College
Roberta Catherine Campbell	Ec	<i>Burlington</i>	86 S. Champlain
Homer Arthur Camp	CE	<i>Barre</i>	22 M. C. H.
Leland Gardner Carlton	E	<i>Brattleboro</i>	5 M. C. H.
Leslie Sumner Carpenter	EE	<i>Morrisville</i>	89 N. Prospect
John Earl Carr	Ch	<i>West Rindge, N. H.</i>	115 Buell
Jay Allen Chamberlin	ME	<i>Grand Isle</i>	133 King
Fred Bixby Church	Ch	<i>Underhill</i>	112 Colchester
Michael John Clancy	EE	<i>Bakersfield</i>	5 N. C.
Ernest Millens Clark	Ch	<i>Ashburnham, Mass.</i>	69 College
Irving Cassius Cobb	Ec	<i>Westford</i>	3 N. C.

Elmer Edward Colcord	E	<i>S. Franklin</i>	65	George
Ray Cutting	Cl	<i>Northfield</i>	5	S. C. H.
Ralph Humphrey Davy	E	<i>Rutland</i>	278	College
Harmon Elmer Eddy	Cl	<i>W. Wardsboro</i>	2	S. C.
Howard Austin Edson	Ch	<i>Randolph Center</i>		M. C.
Bertrand Junius Eno	Ag	<i>Hinesburgh</i>	128	Colchester
Anna Hyland Enright	Cl	<i>Burlington</i>	56	S. Union
Elizabeth Evelyn Enright	Cl	<i>Burlington</i>	56	S. Union
Thomas Smith Farrell	E	<i>Fort Dodge, Ia.</i>	41	S. C. H.
Henry Greene Fuller	Ec	<i>Burlington</i>	21	Loomis
Willard Monroe Gambell	Ag	<i>Barnard</i>	13	Exp. Station
George Fred Gast	E	<i>Palmer, N. Y.</i>	76	Brookes
Harold Joel Gates	Ec	<i>Burlington</i>	360	Pearl
Milo Albert Gibson	Cl	<i>East Barnet</i>	26	S. C. H.
Nahum James Giddings	Ag	<i>Castleton</i>		Exp. Farm
Clyde Dee Gilbert	Ag	<i>W. Enosburgh</i>	11	Exp. Station
Gardner Leland Green	Ag	<i>Barton</i>		Exp. Farm
Albert Byron Grinnell	Ch	<i>Taunton, Mass.</i>	26	N. C. H.
Julian Elias Grow	Ch	<i>E. Randolph</i>		16 S. C.
Charles Henry Gutchell	Ch	<i>Montpelier,</i>	28	Lafayette
Clifford Ashworth Hagar	Ch	<i>Burlington</i>		32 Grant
Charles Erwin Hall	Cl	<i>Brandon</i>	2	Colchester
Della Nellie Harding	LS	<i>Copperfield</i>		388 Pearl
Charles Henry Harwood	Ag	<i>W. Newbury</i>	19	Exp. Station
Albert Tuttle Henderson	Ch	<i>Burlington</i>		95 Adams
Thomas Michael Hickey	Ec	<i>Fair Haven</i>		26 S. C. H.
Harry Morton Hill	Ag	<i>Hyde Park</i>		18 Lafayette
Harley Wesley Holbrook	E	<i>St. Johnsbury</i>	35	N. Willard
Hannah Elizabeth Holmes	LS	<i>Charlotte</i>		411 Main
Robert Ernest Holmes	E	<i>Shoreham</i>		35 Colchester
Henry Clement Howard	E	<i>Swanton</i>		31 N. C. H.
Neal Dow Hulett	E	<i>Granville, N. Y.</i>		36 S. C. H.
George William Hume	EE	<i>Amesbury, Mass.</i>	34	M. C. H.

STUDENTS

125

Eli Judd Irish	LS	Enosburg Falls,	21 M. C. H.
Haines Holden Johnson	Ag	Newbury	12 S. C.
James Pearl Johnson	CE	Burlington	99 Buell
May Johnson	Cl	Burlington	74 Adams
Gertrude Marie Johnston	LS	Lyndon Center	411 Main
Joseph Harry Jubb	E	Bennington	42 M. C. H.
Edward Farnham Kibby	Ag	N. Randolph	Exp. Farm
Ernest Lorenzo Kibby	Ag	N. Randolph	Exp. Farm
Charles Bromley Kimball	LS	Burlington	134 Shelburne
Marcellus Hall Landon	Ec	Burlington	387 S. Union
Merrill Cleveland Lane	E	S. Strafford	35 N. Willard
Anna Zoe Laury	LS	Burlington	272 North
Bessie Edith Lewis	LS	Randolph	8 S. Willard
Benjamin Harris Maeck	EE	Shelburne	35 N. Winooski
Arthur Anderson Mandigo	Cl	Richford	3 N. C.
Ralph Alden Marble	E	Ashburnham, Mass.	M. C.
Ernest Hiram Merrihew	E	S. Burlington	Spear
John Henry Miller	Ag	Newbury	49 Mansfield
Maud Louise Mills	LS	W. Woodstock	411 Main
Melvin Perley Monteith	LS	Enosburg Falls	6 S. C.
Amy Prescott Morse	LS	Lexington, Mass.	411 Main
Maude Mary Mulqueen	Ec	Burlington	7 North Ave.
Mary Agnes Murphy	Cl	West Rutland	11 N. Union
Harvey Emery Norwood	EE	Hampden Oor., Me.	85 S. Willard
Raymond Euclid Noyes	E	Tunbridge	147 Loomis
James Charles O'Neill	Ch	Burlington	52 Colchester
Fay Harry Ovitt	E	Enosburg Falls	21 M. C. H.
Arthur Lesley Owen	Cl	Burlington	164 N. Union
Robert Walter Palmer	Cl	Waterbury	7 N. C.
Harry Morton Parker	E	Hyde Park	23 M. C. H.
Marcus Ripley Peck	Ec	Burlington	Exp. Farm
Ralph Foster Perry	Cl	Westford	3 N. C.
Harry Claggett Pettengill	E	Grafton	193 S. Union

Leon Marsh Phelps	Ch	<i>East Highgate</i>	25 M. C. H.
John Clarence Pomeroy	Ag	<i>Enosburg Falls</i>	6 S. C.
Morton Harold Powers	E	<i>Burlington</i>	7 Shelburne
Harold Eaton Putnam	E	<i>Springfield</i>	36 N. C. H.
Carlton Alden Ranney	Ec	<i>St. Johnsbury</i>	45 M. C. H.
Ralph Lyon Reade	Ch	<i>Attleboro, Mass.</i>	26 N. C. H.
James Orville Reed	E	<i>Morrisville</i>	18 Lafayette
Howard Morton Robinson	LS	<i>W. Newbury, Mass.</i>	150 Cherry
William Millington Rose	Ch	<i>Burlington</i>	25 Pearl
Charles Moody Ruland	Cl	<i>Cairo, N. Y.</i>	14 N. C.
Elmer Beecher Russell	LS	<i>Burlington</i>	386 S. Union
Margaret Mary Shea	LS	<i>Burlington</i>	60 N. Champlain
Walter Chopin Simpson	Ag	<i>Greensboro</i>	7 N. C.
Ray Brown Skinner	LS	<i>Barton Landing</i>	22 N. C. H.
Roy Daniel Skinner	LS	<i>Barton Landing</i>	22 N. C. H.
Julian Milton Slack	Ch	<i>Springfield</i>	56 N. Willard
Ralph Angelo Stone	Cl	<i>Vergennes</i>	16 N. C.
Grace Turner Strong	Ec	<i>Taftsville</i>	128 Colchester
Frank Graham Swett	Ag	<i>St. Johnsbury</i>	35 N. Willard
Lee Westley Thomas	LS	<i>Burlington</i>	57 Loomis
Hugh Leslie Thomson	Ch	<i>Burlington</i>	54 S. Willard
Jessie Blanche Tousley	Ec	<i>Burlington</i>	255 Church
Nehemiah Alvarado Towne	EE	<i>Cady's Falls</i>	89 N. Prospect
John Jay Tracy	Ag	<i>Shelburne</i>	1 N. C.
Silas Edgerton Tracy	Ag	<i>Shelburne</i>	1 N. C.
Cornelius Pryce Valteau	Ch	<i>Wolcott</i>	11 N. C.
Ralph Roy Warren	LS	<i>Stowe</i>	61 Greene
Hugh Hammond Watson	Cl	<i>Montpelier</i>	45 M. C. H.
Mary Louise Wheeler	LS	<i>Burlington</i>	349 College
Robert Lee Whipple	E	<i>Adams, Mass.</i>	31 M. C. H.
Ruby Gertrude Whittemore	LS	<i>Hudson, Mass.</i>	411 Main
Harry Eugene Wood	Ec	<i>Chester</i>	35 Colchester
Dana Francis Woodman	Cl	<i>Vergennes</i>	30 Lafayette
Arthur Clinton Woodward	E	<i>Taunton, Mass.</i>	5 M. C. H.

SPECIAL STUDENTS

Ralph Edward Aiken	<i>Putney</i>	20 S. C.
Herbert Goodridge Bancroft	<i>Bellows Falls</i>	192 S. Union
Bessie Maud Child	<i>Burlington</i>	18 Clarke
Louis Joseph Fremau	<i>Burlington</i>	76 Church
George W. Hatch	<i>Groton</i>	35 Colchester
Kate Morton Hickok	<i>Burlington</i>	567 St. Paul
Lucius Hinkley Jones	<i>Burlington</i>	361 S. Union
Frank Harold Kimball	<i>Cabot</i>	95 S. Union
Mahlon Preston Lamoureux	<i>Burlington</i>	36 Converse Ct.
Arlington Pearl Little, B. S.	<i>Burlington</i>	282 Pearl
George Edgar Nelson	<i>Derby Line</i>	32 N. C. H.
Harlan E. Patterson	<i>Burlington</i>	171 Winooski
Royal Belmont Ryder	<i>Marion, Mass.</i>	Y. M. C. A.
Walter Herbert Shaw	<i>E. Arlington</i>	44 M. C. H.
John Farnsworth Tice	<i>Waterbury</i>	35 S. C. H.
Howard Arnold Tinkham, Jr.	<i>Taunton, Mass.</i>	31 S. C. H.
Margaret Whiting	<i>Burlington</i>	203 S. Willard

MEDICAL STUDENTS, 1902

Fourth Year Class

Henry Tierney Bray	<i>Hartford, Conn.</i>
Marcus Allen Brendel	<i>Hamburg, N. Y.</i>
Sheldon Samuel Stratton Campbell	<i>St. Albans</i>
Sidney Raymond Carsley	<i>New Portland, Me.</i>
Harry Carter	<i>South Manchester, Conn.</i>
Jaynes Mott Crumb	<i>South Otsego, N. Y.</i>
Louis Leopold Davidson	<i>New York City, N. Y.</i>
Jesse Judson Dearborn	<i>Milford, N. H.</i>
Thomas Benton Dearborn	<i>Milford, N. H.</i>
Hugh Francis Dolan	<i>Bangor, Me.</i>
Frank Floyd Finney, Ph. B.	<i>Hinesburgh</i>

John Edward Fitzgerald	<i>Burlington</i>
David Harris Gatchell	<i>Old Town, Me.</i>
Otto Vernon Greene	<i>Bethel</i>
Perley Harriman	<i>Burlington</i>
Roland John Harvey	<i>East Burke</i>
Edward Allen Heath	<i>Burlington</i>
Nebuther Holden	<i>Boston, Mass.</i>
Henry Wade Hopkins	<i>Essex Junction</i>
Daniel James Hoyt, A. B.	<i>Amsterdam, N. Y.</i>
Raymond Child Jones	<i>Woodsville, N. H.</i>
Willard Wallace LeMaire	<i>Taunton, Mass.</i>
John Patrick Lenahan	<i>Hudson, N. H.</i>
Frank Clark Lewis	<i>Burlington</i>
Leon Elden Libby	<i>Bridgeton, Me.</i>
Lawrie Byron Morrison	<i>Ryegate</i>
Peter James Mullen	<i>Beekmantown, N. Y.</i>
George Harvey Parmenter	<i>Montpelier</i>
Charles Winfield Phillips	<i>Arlington</i>
Bert Leon Richardson	<i>Gorham, N. H.</i>
William Moller Schroeder	<i>New York City, N. Y.</i>
Ernest Elliott Sparks	<i>Williamsville</i>
Wallace Henry Tarbell, B. L.	<i>Kansas City, Mo.</i>
George Southwick Thompson	<i>West Medway, Mass.</i>
Thomas P. Walsh	<i>Middletown, Conn.</i>
Vance William Waterman	<i>Burlington</i>
Robert Moore Wells	<i>Barton</i>

Third Year Class

Charles Gorden Abell	<i>Enosburg Falls</i>
William Henry Black	<i>Burlington</i>
David Russell Brown	<i>Wentworth, N. H.</i>
Emerson Marrs Bushnell	<i>Williston</i>
Benjamin Joseph Butler	<i>Crompton, R. I.</i>

Linn Henry Corey	<i>Woodstock</i>
Henry Leo Crahan	<i>Chittenden</i>
Charles Francis Dalton	<i>Springfield, Mass.</i>
Thomas Edward Duffee	<i>Lowell, Mass.</i>
Frank Harvey Dunbar	<i>Swanton</i>
Albert Clinton Eastman	<i>Barnard</i>
George Crofton Enright	<i>Burlington</i>
William Francis Hamilton	<i>Miller's Falls, Mass.</i>
Robert Burns Harriman	<i>St. Johnsbury Center</i>
Chauncey Earle Hunt	<i>Montpelier</i>
Raymond Alexander Kinloch	<i>Troy, N. Y.</i>
Howard Fellows Morse	<i>Center Harbor, N. H.</i>
Harry Bradford Perkins	<i>Bakersfield</i>
Frank Preston	<i>Burlington</i>
Joseph Warren Richardson	<i>Barre, Mass.</i>
William Rathburn Rowland	<i>East Corinth</i>
Samuel Dudley Rumrill	<i>Springfield, Mass.</i>
Henry Elijah Somers	<i>Irasburgh</i>
Frank Elijah Spear	<i>Charlotte</i>
Fenwick Gordon Taggart	<i>Burlington</i>
John Edward Valle	<i>Island Pond</i>
Norman Brown Webber, B. S.	<i>Manchester, N. H.</i>
Charles Flagg Whitney, B. S.	<i>Williston</i>
Samuel Wilenchick	<i>New York City, N. Y.</i>
Chauncey Warner Willey	<i>Cambridge</i>

Second Year Class

Landon Abernethy	<i>Bristol</i>
Dell Beeman Allen, Ph. B.	<i>Burlington</i>
Harry Nelson Archibald	<i>Troy, N. Y.</i>
Ernest Eston Bicknell	<i>Johnson</i>
Henry Raymond Biggar	<i>Chicago, Ill.</i>
Herman David Bone, B. S.	<i>Wells River</i>

Thomas Stephen Brown	<i>Deerfield, N. H.</i>
Charles Stephen Buchanan	<i>Troy, N. Y.</i>
Curtis Charles Alfred Bullock	<i>Roxton Pond, P. Q.</i>
Edward James Burke	<i>Burlington</i>
Gersham Loveland Closson, Jr.	<i>Springfield</i>
Alden Vernon Cooper	<i>Lewiston, Me.</i>
Lewis Clinton Day	<i>Nicholville, N. Y.</i>
Julius Edward Dewey	<i>Montpelier</i>
Isaac Randall Doane	<i>Springfield</i>
Peter Leo Dorey	<i>Underhill Center</i>
Dean Spencer Drake	<i>West Lebanon, N. H.</i>
Stephen Farrer Dunn	<i>Woonsocket, R. I.</i>
George William Eddy	<i>Schuylerville, N. Y.</i>
William Warren Ferrin	<i>Portsmouth, N. H.</i>
Rowe France	<i>Burlington</i>
Jesse Louis Gammons	<i>Brooklyn, N. Y.</i>
Stillman Proctor Grout	<i>Cavendish</i>
Joseph Bernard Guiltinan	<i>Bennington</i>
Nathaniel William Hankemeyer, A. B.	<i>Winooski</i>
DeForest Clinton Jarvis	<i>Burlington</i>
Edwin Francis Jones	<i>Burlington</i>
Linwood Major Kelley	<i>Richford</i>
Warren Edglie Kershner	<i>Waterville, Me.</i>
Edward Cloyd Kistler	<i>Blain, Pa.</i>
Fred Joseph LaFleur	<i>Providence, R. I.</i>
Arthur Leo Larnier	<i>Burlington</i>
George Eugene Latour	<i>Burlington</i>
James Francis Lawlor	<i>East Douglas, Mass.</i>
Robert Henry Lee	<i>Dorset</i>
William Franklin LeMaire	<i>Taunton, Mass.</i>
Lothair Lewis Leonard	<i>Montpelier</i>
Lewis Florence McCarthy	<i>Morrisville</i>
Florence William McCarthy	<i>East Dickinson, N. Y.</i>
Herbert Sawyer McCasland	<i>Redford, N. Y.</i>

James Parker MacDowell	<i>Penn Yan, N. Y.</i>
Edward Rodrick Benedict McGee	<i>Berlin, N. H.</i>
Patrick Joseph McKenzie	<i>Burlington</i>
Roy Sidney Morse, Ph. B.	<i>Montpelier</i>
Daniel Joseph Nolan	<i>Burlington</i>
Michael Joseph Noone	<i>Scranton, Pa.</i>
George Bernard O'Connell	<i>Auburn, Me.</i>
Daniel Vincent O'Donnell	<i>Bennington</i>
Charles Norman Perkins	<i>Burlington</i>
Willis Staats Pomeroy	<i>Voorheersville, N. Y.</i>
John Lyman Potter	<i>Island Pond</i>
Charles Ai Pratt	<i>Franklin</i>
Vernon George Rand	<i>Burlington</i>
William Edson Ross	<i>Franklin Falls, N. H.</i>
Harry Richard Ryan	<i>Rutland</i>
Delano Richmond Ryder	<i>Marion, Mass.</i>
Otis White Sedgwick	<i>Bondville</i>
Charles Jay Shaw	<i>Shoreham</i>
William Becker Stewart	<i>Oneonta, N. Y.</i>
Eulick Francis Sullivan	<i>Three Rivers, Mass.</i>
Francis Albert Taylor	<i>Brooklyn, N. Y.</i>
Harry Wallace Trask	<i>Worcester, Mass.</i>
John Wilson Trask	<i>Lynn, Mass.</i>
James Cornelius Wilson	<i>Hartford, Conn.</i>

First Year Class

John Edward Adams, A. B.	<i>Swanton</i>
Heber Morse Adams	<i>Hill, N. H.</i>
Burdett Loomis Arms	<i>Boston, Mass.</i>
Elmer Joseph Barney	<i>Berlin, N. H.</i>
Glen Irving Bidwell	<i>Madison, N. Y.</i>
Bayard Taylor Blake	<i>Nicholville, N. Y.</i>
Wilfred Chlorus Bliss	<i>South Burlington</i>

Frank William Bowdoy	<i>Starr, N. Y.</i>
Bird Joseph Arthur Bombard	<i>Keeseville, N. Y.</i>
Albert Wellington Bridge	<i>Frelighsburg, P. Q.</i>
Frederick Gustave Buesser	<i>Troy, N. Y.</i>
Alfred Mitchell Butterfield	<i>North Troy</i>
George Delbert Buxton	<i>Burlington</i>
William Alfred Cassidy	<i>Rutland</i>
William Henry Clancey	<i>Marlboro, Mass.</i>
Robert Emmett Conlin	<i>Poughkeepsie, N. Y.</i>
Charles Augustus Davis	<i>Berne, N. Y.</i>
Arnold Allen Denton	<i>Upper Jay, N. Y.</i>
Gyrdie Willie Dickinson	<i>Fairfield</i>
Frederick Lewis Eames	<i>Millbury, Mass.</i>
Alson David Ferris	<i>South Hero</i>
Robert Cushman Flagg	<i>Berlin, N. H.</i>
Clinton Fifield Gale	<i>Barre</i>
Frederick Henry Gebhardt	<i>Utica, N. Y.</i>
William Myron Guernsey	<i>Middlebury</i>
Michael Arthur Haher	<i>Proctor</i>
Joseph Horton Hays	<i>Salem, N. Y.</i>
Lewis Edward Hemenway, A. B.	<i>Manchester</i>
Harley Sylvester Herrick	<i>Herrick</i>
Ralph Wilson Hoyt	<i>Penn Yan, N. Y.</i>
Fayette Elmore Hubbard	<i>Burlington</i>
Leslie Herbert Huggard	<i>Henderson's Corner, N. B.</i>
John Hughes	<i>Providence, R. I.</i>
Abbott Trask Hutchinson, A. B.	<i>Burlington</i>
Tracy Keeler Johnson	<i>Greene, N. Y.</i>
James Ambrose Jones	<i>Boston, Mass.</i>
Daniel John Keelan	<i>Utica, N. Y.</i>
Walter Lamson Kelso, B. L.	<i>New Boston, N. H.</i>
Edward Anthony Kennedy	<i>St. Albans</i>
William Wesley Ker	<i>Shepherd, Mich.</i>
George LeRoy Knapp	<i>Shoreham</i>

William Arthur LaField	<i>Bridgeport, Conn.</i>
Edmund Rushmore Lape	<i>Fair Haven</i>
Thomas Aloysius Louby	<i>Pomfort, Conn.</i>
Joseph Taney McGinity	<i>Shoreham</i>
Matthew John Mangan	<i>Rutland</i>
Byron Andrew Martine	<i>Glens Falls, N. Y.</i>
Alvah Vernon Mills	<i>Boston, Mass.</i>
James LaSalle Miner	<i>St. Johnsbury</i>
Roscoe Lee Mitchell	<i>Charleston, Me.</i>
William Cameron Mitchell	<i>Old Chatham, N. Y.</i>
Will Hayes Mitchell	<i>Burlington</i>
Erastus Frederick Morris	<i>Burlington</i>
Cornelius Parnell Murphy	<i>Old Town, Me.</i>
John Charles Murphy	<i>Richmond</i>
Elwood Arthur Nichols	<i>Massena, N. Y.</i>
Edward James Owens, A. B.	<i>Berkley, R. I.</i>
Weston Henry Rice	<i>Burlington</i>
George Albert Russell	<i>Bristol</i>
Leon Loyal Samson	<i>Nicholville, N. Y.</i>
Thomas Ahern Shaughnessy, A. B.	<i>Bellows Falls</i>
John David Smith	<i>Jay, N. Y.</i>
Edwin Francis Sullivan	<i>Gloucester, Mass.</i>
Henry Lewis Taft	<i>Burlington</i>
Edward Arthur Tobin	<i>Northampton, Mass.</i>
Roy Willard Tyler	<i>Burlington</i>
George Walreth	<i>St. Johnsville, N. Y.</i>
Frank Waldo Ward	<i>Kennebunk, Me.</i>
John Martin Wheeler, A. B.	<i>Burlington</i>
Harold Lyman Williamson	<i>Bristol</i>
Laforest Julian Wright	<i>Lewiston, Me.</i>

DAIRY SCHOOL STUDENTS, 1902

Guy Bancroft, <i>East Calais</i>	C. E. Jakway, <i>West Haven</i>
C. K. Beebe, <i>West Rupert</i>	M. L. Kendall, <i>Fairlee</i>
D. N. Buck, <i>Fairfax</i>	J. W. Kimball, <i>Sharon</i>
J. G. Campbell, <i>Stowe</i>	James Linton, <i>Wolcott</i>
H. T. Chase, <i>E. Fletcher</i>	J. A. McAffery, <i>Albany</i>
A. S. Chaffee, <i>Richford</i>	M. E. Marrs, <i>Waterbury</i>
W. J. Clarke, <i>Benson</i>	F. B. Miles, <i>Middlesex</i>
C. H. Comstock, <i>Newport, N. H.</i>	F. B. Nelson, <i>W. Salisbury</i>
Mrs. C. H. Comstock, <i>Newport, N. H.</i>	E. B. Orr, <i>Poultney</i>
M. J. Crowley, <i>S. Burlington</i>	E. W. Parent, <i>Brandon</i>
H. J. Cummings, <i>Brushton, N. Y.</i>	W. B. Pratt, <i>Franklin</i>
H. H. Davidson, <i>W. Albany</i>	O. R. Quimby, <i>Randolph</i>
H. S. Dunton, <i>Franklin</i>	E. O. Roy, <i>W. Barnet</i>
F. B. Dutton, <i>Woodstock</i>	Lottie E. Roy, <i>W. Barnet</i>
C. F. Eddy, <i>Stowe</i>	D. E. Ryan, <i>Orwell</i>
J. E. Ely, <i>Argyle, N. Y.</i>	A. W. Samson, <i>Enosburg Falls</i>
David Erwin, <i>W. Berkshire</i>	O. D. Samson, <i>Enosburg Falls</i>
O. N. Estes, <i>Lincoln</i>	W. H. Seymour, <i>St. Albans</i>
A. S. Fassett, <i>Burlington</i>	Thomas Smith, <i>W. Glover</i>
H. W. Gage, <i>Crown Point, N. Y.</i>	C. N. Southard, <i>Fairfax</i>
F. E. Gilfillan, <i>E. Burke</i>	B. C. Stearns, <i>Johnson</i>
R. E. Greene, <i>S. Randolph</i>	C. H. Stygles, <i>Hyde Park</i>
C. W. Heflin, <i>N. Pomfret</i>	P. S. Utridge, <i>Hebron, N. Y.</i>
Mark Hicks, <i>Richford</i>	H. F. Watts, <i>Canaan</i>
F. C. Hills, <i>Middlesex</i>	A. C. Wells, <i>Bakersfield</i>
L. W. Hovey, <i>E. St. Johnsbury</i>	A. R. White, <i>Waterbury</i>
F. M. Hutchins, <i>Johnson</i>	

DEGREES CONFERRED IN 1901-1902

HONORARY

DOCTOR OF LAWS

The Hon. HIRAM FAIRCHILD STEVENS (1872), St. Paul, Minn.
 Professor WILLIAM NELSON FERRIN, 1875, Forest Grove, Ore.

DOCTOR OF DIVINITY

The Rev. EDWIN WHEELLOCK, 1849, Cambridge, Vt.

MINING ENGINEER

ROBERT MAYO CATLIN, C. E., 1873, Johannesburg, S. Africa

IN COURSE

DOCTORS OF MEDICINE

Henry Tierney Bray	Willard Wallace LeMaire
SheldonSamuelStrattonCampbell	John Patrick Lenahan
Sidney Raymond Carsley	Frank Clark Lewis
Jaynes Mott Crumb	Lawrie Byron Morrison
Louis Leopold Davidson	Peter James Mullen
Hugh Francis Dolan	George Harvey Parmenter
Frank Floyd Finney, Ph. B.	Charles Winfield Phillips
John Edward Fitzgerald	Bert Leon Richardson
David Harris Gatchell	William Moller Schroeder
Perley Harriman	Ernest Elliott Sparks
Roland John Harvey	Wallace Henry Tarbell, B. L.
Edward Allen Heath	George Southwick Thompson
Nebuther Holden	Thomas P. Walsh
Henry Wade Hopkins	Vance William Waterman
Daniel James Hoyt, A. B.	Robert Moore Wells
Raymond Child Jones	

BACHELORS OF ARTS

John Edward Adams	Anna Mary Lilley
George Percival Auld, <i>cum laude</i>	Levi Miller Munson
Alice Lillian Bean	Cassius Reuben Peck, <i>cum laude</i>
Arthur Sanders Bean	Arthur Duane Stearns
Florence Louise Douglas	Richard Hills Taylor
Abbott Trask Hutchinson	Julius Arthur Tellier
Elizabeth Converse Johnson	John Martin Wheeler
Harry Bliss Joyner	Jessie Patience Woodworth
Nelson Kellogg	

BACHELORS OF PHILOSOPHY

Geneva C. Carpenter, <i>cum laude</i>	John Nelson Harvey
Mary Conro	Maud Leonora Merrihew
Alice Harriet Derby, <i>cum laude</i>	Irving Lyman Rich
James E. Donahue, <i>cum laude</i>	Donna Marie Slater, <i>cum laude</i>
Bertha Isadore Field, <i>cum laude</i>	Ethel Marilla Stevens
Grace Anna Goodhue	James Obadiah Walker
Mary Wheaton Hall	Carey Persia Williams

BACHELORS IN SCIENCE IN CIVIL ENGINEERING

Luther David Beckley	Albert Orange Smith
William Eli Putnam	Richard Dudley Wilson

BACHELORS OF SCIENCE IN MECHANICAL ENGINEERING

Floyd Arkley Miller	Adin Cyprian Woodbury
John Elliott Seaver	Maxwell Eugene Woodward

BACHELORS OF SCIENCE IN ELECTRICAL ENGINEERING

George William Gilson, B. S.	George Glenn Morse
Harry Pratt Hudson	Don Martin Rice
George Eugene Lamb	Arthur Hastings Tenney
James McEwen Larabee	Arthur Day Welch

BACHELORS OF SCIENCE IN CHEMISTRY

George Orin Bryant	Forrest Metcalf Larchar
Harold Frederick Huntley	Harris David McDonald, A. B.
Arthur Leon Kelley	Lysander Herbert Merrihew

BACHELORS OF SCIENCE IN AGRICULTURE

Willard Levi Goss	Leonard Pearsons Sprague
Leon Everett Grout	Reuben Richardson Strait

MASTERS OF ARTS

Perley Orman Ray, A. B. 1898

George Washington Tapley Whitney, Ph. B. 1897

MASTER OF SCIENCE

Arthur Woodbury Edson, A. B. 1900

HONOR LIST 1901-1902

GENERAL HIGH STANDING

Donna Marie Slater	Bertha Isadore Field
James Edward Donahue	George Percival Auld
Cassius Reuben Peck	Geneva Claire Carpenter
Alice Harriet Derby	

SPECIAL HONORS

Greek:—Elizabeth Converse Johnson

French:—Donna Marie Slater

HONORABLE MENTION FOR THESIS OF CONSPICUOUS MERIT

Leonard Pearsons Sprague

SPEAKERS AT COMMENCEMENT

George Percival Auld	John Nelson Harvey
Alice Harriet Derby	Forrest Metcalf Larchar
James Edward Donahue	Cassius Reuben Peck
Bertha Isadore Field	Julius Arthur Tellier

UNIVERSITY OF VERMONT

KINGSLEY PRIZES IN DECLAMATION

First:—Daniel Michael Walsh, 1904

Second:—Irwin Spear, 1904

Third:—Lee Harris Hulett, 1905

JULIA H. SPEAR PRIZES IN READING

First:—Della Nellie Harding, 1904

Second:—Sarah Grace Dean, 1905

Third:—Mae Louise Clifford, 1905

JUNIOR PRIZES FOR PROGRESS

Henry Wallace, 1903

Fred Martin Hollister, 1903

ENTRANCE EXAMINATION PRIZES, 1902

Latin:—Hugh Hammond Watson

St. Johnsbury Academy

Greek:—Hugh Hammond Watson

Mathematics:—Howard Austin Edson

Vermont Academy and Randolph Normal School

HONORABLE MENTION

Greek:—Anna Hyland Enright

Ruth Person Bond

Mathematics:—Ruby Gertrude Whittemore

James Orville Reed

Morton Harold Powers

SPEAKERS ON FOUNDER'S DAY, 1902

Charles Whiting Baker, 1886

Walter Alden Dane, 1903

Cassius Reuben Peck, 1902

ASSOCIATE ALUMNI

President:—John H. Converse, LL. D., Philadelphia, Pa.

Vice-President:—Hon. Robert Roberts, Burlington.

Secretary:—Charles E. Allen, Burlington.

Treasurer:—Joseph T. Stearns, Burlington.

Obituary Committee:—Prof. J. E. Goodrich, Rev. Geo. Y. Bliss, Rev. S. L. Bates, and W. B. Gates, all of Burlington.

Executive Committee:—Hon. E. B. Taft, Hon. Elias Lyman, J. D. Denison, Charles A. Catlin, Prof. D. R. Dewey.

Local Alumni Associations, designed to cherish the college spirit and promote the interests of the University in their several localities, have been formed as follows:

THE NEW YORK ASSOCIATION, for New York City and vicinity:

President:—Hon. C. B. McLaughlin, '79, LL. D.; *Vice-Presidents*:—Hon. H. W. Hill, '76, LL. D., W. C. Flanders, '90; *Secretary and Treasurer*:—P. J. Ross, '95, [15 Wall St.]; *Executive Committee*:—Prof. Horatio Loomis, '76, Sc. D., E. J. Armstrong, '94, F. F. Lincoln, '97, C. A. Bigelow, '99.

THE NEW ENGLAND ASSOCIATION, meeting in Boston:

President:—Charles A. Catlin, '73; *Vice-Presidents*:—Prof. D. R. Dewey, '70, Prof. F. E. Woodruff, '75, Frank H. Clapp, '86, M. D., Hon. Elias Lyman, '70, Albert Nott, M.D., '69; *Secretary and Treasurer*:—Karl A. Andren, '95 [93 Federal St., Boston]; *Asst. Sec. and Treas.*:—George P. Anderson, '96; *Chaplain*:—Rev. J. W. Buckham, '85; *Executive Committee*:—George W. Benedict, '93, Almon Cooper, M. D. '88, E. H. Deavitt, '93, George W. Stone ('94), A. A. Gibson, M. D., '77.

THE WASHINGTON (D. C.) ASSOCIATION:

President:—Prof. A. F. A. King, M. D.; *Vice-Presidents*:—T. L. Jeffords, '86, L. F. Englesby, '76, H. F. Perkins, '98; *Secretary and Treasurer*:—W. A. Orton, '97 [care of Dept. of Agriculture]; *Executive Committee*:—J. S. Morrill, '80, D. W. Holton, '97, C. B. Sornborger, '90.

SUMMARY

Undergraduates: Classical, 58; Literary-Scientific, 62; Engineering, 77; Chemical, 35; Agricultural, 40; Economics, 17; Special, 17; Total.....	306
Seniors, 49; Juniors, 61; Sophomores, 56; Freshmen, 123 Special, 17; Total Academic Students	306
Medical Students, 1902	202
Dairy Students, 1902	53
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Aggregate	561

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